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DECEMBER Col. Chas. A. Lindbergh in His Menasco Powered Miles "Mohawk" 1936

Southern Flight

formerly SOUTHWESTERN AVIATION

PARKS AIR COLLEGE, THE TRAINING DIVISION OF COMMERCIAL AVIATION

(Above) Faculty and students of Parks Air College assembled October 12, 1936 to hear the first of a series of lectures delivered by prominent executives.

(Below) During a training flight in a J-5 Travelair a Parks Professional Flight student explores cloudland.

(Lower) The twin-engined Monocoach, with landing gear lowered, is ready to set down on Parks Airport. The Monocoach is the latest addition to the Parks training fleet of thirteen planes. It is for the use of the Professional Flight student in advance training. In the background is the South Hangar where the training fleet is housed.

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Southern Flight

The Complete Monthly Digest of Aeronautics in The South and Southwest

DECEMBER

1936

Vol. VI.—No. 6

Published Monthly by

Southwestern Aviation Publishing Co., Inc.

Ledger Building

Fort Worth, Texas

GEORGE E. HADDAWAY
Editor

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General Manager

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Manuscript and general copy deadline twentieth of month preceding date of issue. Publisher does not guarantee return of manuscript unless postage accompanies same.

SUBSCRIPTION RATES:

Single Copies - -	25c
One Year - - -	$2.00
Two Years - - -	$3.00
Foreign - - -	$3.00

Change of address notification must be given publisher at least two weeks in advance of issue date to insure prompt receipt of copies.

Established February, 1934.

Entered as second class matter April 5, 1935, at the Post Office, Fort Worth, Texas, under Act of March 3, 1879.

20

CONTENTS

THE COVER:

Col. Lindbergh's Menasco powered "Mohawk."

An interesting foreign development is the two-place, low-wing monoplane built to Col. Lindbergh's own specifications by Phillips & Powis, Ltd., of England.

With a speed in the neighborhood of 200 m. p. h., power is furnished by a B6-S Supercharged Menasco Buccaneer. The English concern announced simultaneously that arrangements had been made for manufacturing Menascos in England.

EDITORIALS

THE BRITISH PREPARE 5

FORGET POLITICS? 5

SPECIAL FEATURES

A DOOR-TO-DOOR SEAPLANE SERVICE 9
By A. M. Brown

TEXAS TOUR 10
By C. C. Scott

PACIFIC SHOW TO SPLIT PROFITS 11
By Stanley A. Hedberg

ENTIRE NATION MAPPED FOR AIRMAN 12
First Series of Aero Charts Completed

NEW EQUIPMENT

THE "MOTOREEL" AIRCRAFT ANTENNA 13
By Wm. P. Lear

BEECHCRAFT MODEL 18 14
By Creighton I. Merrell

REGULAR FEATURES

NEWS OF THE MONTH IN REVIEW 16
Notes from the Industry at Large

PORTS OF CALL 18
Correspondence from the Airports and Airways

DIRECTORY AND CLASSIFIED ADVERTISING 25

Editorials and Comments

Forget Politics?

SOME of our contemporaries would have the industry either forget politics altogether or take the attitude that every association American aviation has with the Government means certain chaos for the industry—an unhealthy condition to foster, particularly at this time when there's so much unfinished business to attend to and within a few brief weeks before the new Congress convenes.

Never before in the history of domestic aviation has the occasion demanded so concerted an effort on the part of the industry to increase its interest in politics (in the broader sense of the word), acquaint itself with political trends towards aeronautical advancement, and with knowledge and integrity of purpose, strive to mould political thought toward greater Federal patronage of American aviation and a more intelligent appraisal of the airplane's inherent value to the nation as a common carrier, as a necessary link in our transportation system, as a private conveyance and as a national defense weapon.

If we sit back expecting burnt fingers, reprisals, maltreatment and legislation that will hinder advancement, surely we can expect to get soaked; if we continue to lose sleep over the mistakes of the past, stir up literal tempests in teapots every time something goes amiss, no matter how insignificant, we cannot expect cooperative treatment. If we follow the other course and avoid politics, isolate ourselves from any consideration of government patronage and regulation, we are placing the future of American aviation in mighty dangerous hands.

So long as the Department of Commerce and the I. C. C. have regulatory control, so long as the Post Office Department patronizes the air lines, so long as Congress has the power to appropriate funds for national defense, research and facilities for airmen, the aviation industry must follow, and follow closely, every political trend. To forget politics with the wave of the arm at this stage of the game would be little short of suicidal.

With the maze of unfinished business it's poor time to talk adjournment. The Vinson Act must be amended; the Marine Act of 1936 must be made applicable to lighter-than-air craft; obsolete methods and regulations of the Bureau of Air Commerce must be thrown out; a scaling up of air mail pay and provisions for a network of feeder line services; a hastening up and expansion in the re-modernization of our air forces—these are some of the major jobs facing American aviation as a new year dawns.

Let's keep our hands on the pulse in Washington.

The British Prepare

"A COURSE of flying training for pilots of the Royal Air Force Volunteer Reserve will commence on 25th January next. The course will be of approximately 10 weeks' duration and will involve continuous whole-time attendance. It will be open to young men of good physique, who have attained the age of 18 and have not attained the age of 25, and who have reached a standard of education approximately equal to that required for the school certificate of the Oxford and Cambridge Schools Examination Board. Previous flying experience is not necessary.

"The training is provided free of charge and pupils will be paid at the rate of 16/6d. (approx. $4.00) a day during the course, in addition to a retaining fee of 25 pounds a year during service in the Royal Air Force Volunteer Reserve. . . ."

So reads an announcement ad in a recent issue of the London *Daily Mail.*

Naturally we would expect smug isolationists here in the United States to pass comment on the foregoing in terms similar to this: "The present European crisis forces England to increase her military reserve; England's proximity to her possible enemies requires preparedness at all times."

But those of our citizenry, who feel so secure with wide oceans separating us from other continents, lose sight of the long-range fighting craft that have been developed within the last two years, placing the shores of continental America within a few brief hours of our stormy neighbors across the seas.

No doubt the emergency is more alarming in England's case because of her nearness to continental Europe, but the fact remains that the United States might consider the wisdom of her cousins in subsidizing flight training among qualified youth, building up a reserve second to none, and divorcing our nation from the ranks of fifth rate air powers. It is a known fact that appointments to our military training fields satisfy about ten per cent of the applicants, that "washouts," due to the necessary selective methods of training, bring the percentage of finished military pilots even lower.

But England is wise. They take the overflow, in fact advertise for applicants in their "Volunteer Reserve," and supply primary flight training in order to have at least a portion of the job complete and reserves available in case of emergency.

At the same time the plan amounts to direct flight subsidy which means widespread dissemination of flight knowledge and rudimentary military tactics within the ranks of the most valuable factor in any nation's defense —young men between the ages of 18 and 25. Likewise it means the manufacture and use of more airplanes and materials, and the construction of more bases, which would complete the bulwark of an enlightened, potent air defense program.

Britain is not preparing for war; they are insuring themselves against war, and giving proper emphasis to their most important weapon of defense—the airplane. We would be indeed wise to follow her example.

TWO-ROW RADIAL ENGINES

A review of their history, their faults and virtues, their probable future usefulness, as seen in the light of Pratt & Whitney developments.

By Robert Insley

Assistant Director of Research, United Aircraft Corporation

IN THE rapid increase in the power requirements of aircraft engines, the single-row radial engine has reached the limit of its capabilities. While normal service ratings rose from below 200 to about 800 horsepower the single-row, air-cooled radial engine was the predominant type. As these service ratings exceeded 800 horsepower, however, the inherent limitations of the single-row engine became more and more apparent so that now, in the higher power categories, it is rapidly being supplanted in service installations by the two-row type and appears to have disappeared entirely from high-power engine development programs. Under such circumstances it seems opportune to review the history of the two-row engine, to examine its faults and virtues, and to form an opinion of its probable future usefulness.

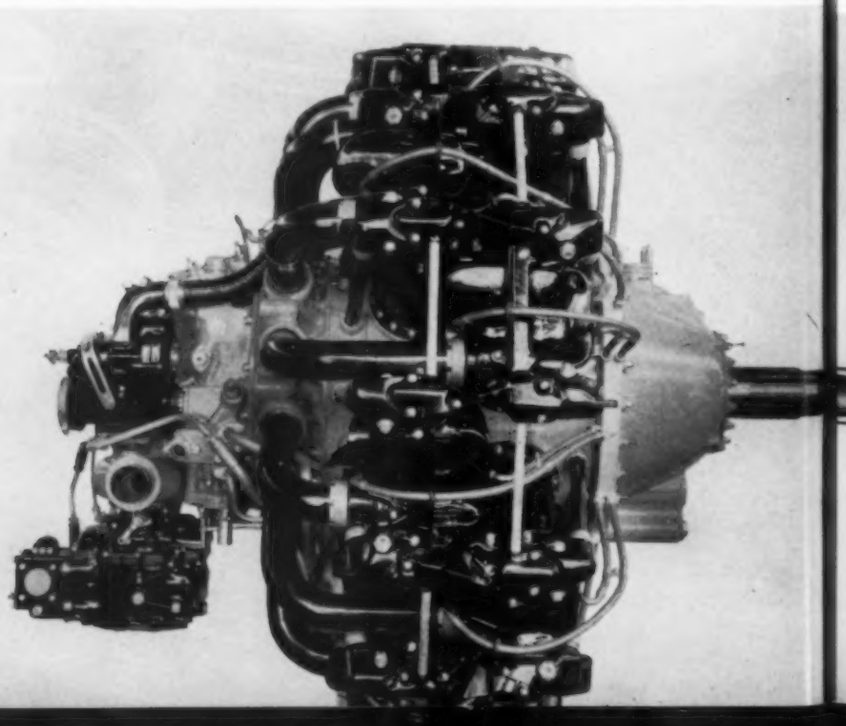
The limitations of the single-row radial engine and the advantages of the two-row type are not new discoveries. In fact some of the earliest fixed radial engines were made in the two-row form for many of the same reasons which justify that type today. However, in the horsepower ratings then current, the inherent limitations of the single-row engine were not important; hence, the double-row type has made its most rapid progress only in recent years when increasing engine powers made a change in type imperative.

The defects of the single-row engine for large power output arise from three general causes: (a) the limited number of cylinders, (b) the limited operating speed, and (c) the overall diameter. The first cause, limited number of cylinders, effects engine smoothness and stresses because of the torque variation resulting from firing impulses. It is mechanically impractical to use more than nine cylinders on a single-row engine. Hence, with constant crankshaft speed, the severity of torque impulses increases directly with horsepower. The increase in torque impulse produces a corresponding increase in the vibration of the engine which aggravates passenger discomfort, increases the stresses in the engine and aircraft structure and tends to produce distinctive vibration in the airplane.

The alternative, of course, is increased engine speed. If it were possible to increase the power of an engine by simply increasing its crankshaft speed, the severity of torque impulses could be held constant or reduced, their frequency increased and many of the two-row objectives could be attained in the single-row engine. However, the bore and stroke required for the necessary single-row engine displacement produce inertia and explosion loads which establish a rather low safe limit for crankshaft speeds. By contrast, therefore, the two-row engine gains in smoothness not only in proportion to its number of cylinders, but also in proportion to its higher permissible operating speed.

The arrangement of cylinders in the single-row radial engine is advantageous from the point of view of minimum weight and engine length, but it clearly is not desirable in its effect on engine diameter and its consequent effect on airplane performance or vision. The low-drag cowling, now almost universally used on radial engines, has greatly reduced the drag of such engines, but still, because of the drag due to engine form and of the blanketing effect of such large area in the propeller slipstream, it is highly important that engine diameter be kept as small as possible. That the two-row engine

Left: Every two-row engine of Pratt & Whitney manufacture is subjected to a total of 15 hours of gruelling dynamometer tests. Between the "green" and "final" test periods the engine is completely torn down, its parts inspected and re-assembled for its final full power run. Right: Full side view of the Twin Wasp, rated at 1000 h. p. for take off. This 14-cylinder two-row radial powerplant has developed in excess of 1150 h. p. on dynamometer tests.



of equal output will permit reduction in cowling diameter of approximately 20 per cent is a powerful argument in its favor, not only because of the reduction of drag thus accomplished, but in many cases because of the greatly improved vision permitted by such diameter reduction.

SOME seven years ago these tendencies became apparent to the engineers of Pratt & Whitney Aircraft and the two-row development program was started. The first results of that program, the now famous Twin Wasp and Twin Wasp Junior engines, were put into regular production in 1934 and have, therefore, seen sufficient service to permit evaluation of their virtues in comparison with the single-row engines of similar mechanical construction. Like the single-row Wasp and Hornet engines, the Twin Wasp and Twin Wasp Junior engines are mechanically identical, differing only in the size of parts to accommodate their difference of displacement of 1830 and 1535 cubic inches respectively and, except for differences in crankshafts, master connecting rods, and cam mechanisms, they are of the same general construction as the single-row Pratt & Whitney engines. The two-row engines have 14 cylinders arranged in two staggered rows of seven each. The cylinders of the front row, together with their valve gear, resemble very closely the cylinders of the single-row engines, while for the rear cylinders the cams and valve gear are behind instead of in front, with corresponding modifications in the cylinder heads. Reduction-gear and accessory-drive assemblies are very similar to those of the single-row engines. The engines differ, therefore, only in the essential features of the two types and comparison of their service records should provide a reliable indication of their relative advantages or disadvantages.

Although the objects in mind in the development of the two-row engines were principally small diameter and smoothness, these engines do not suffer noticeably in other respects. It might be expected, for example, that an engine with two crank throws, two rows of cylinders, and other corresponding parts in duplicate would be appreciably heavier than a single-row engine, yet the Twin Wasp Junior in pounds per cruising horsepower is less than 10 per cent heavier than the Hornet engine of substantially equal power. Early fears that good mixture distribution might be difficult to obtain in the two-row engine or that its mechanical efficiency might be low have not been realized, as a matter of fact service records have tended toward slightly lower specific fuel consumptions for the two-row engine than for the single-row engine under corresponding conditions.

Operating Characteristics

IN COMMON with internal combustion engines in other fields, the two-row radial aircraft engine exemplifies the improvements in operating characteristics which follow from an increase in the number of cylinders. One of these operating improvements is in general smoothness and freedom from vibration. Thus with the two-row engine the effects of repeated stresses on the airplane structure are minimized, with consequent diminution in maintenance difficulties and in the detrimental consequences of transmitted vibration. This last circumstance naturally means not only more comfort for the occupants of the airplane but also more reliable functioning of instruments and auxiliary equipment.

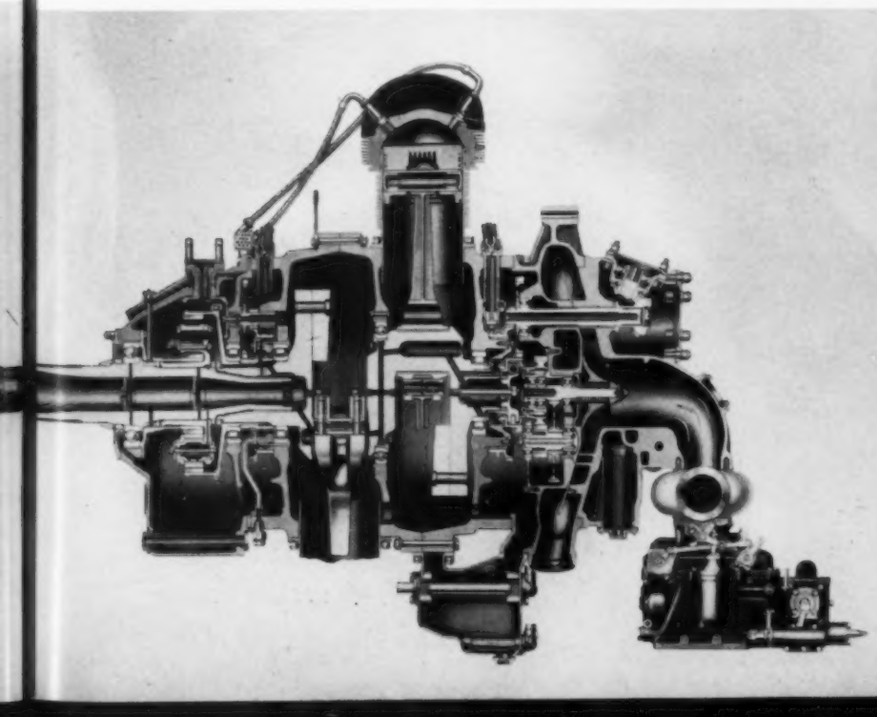
The fact that, as compared with the single-row engine, the two-row has more and smaller cylinders results in a second important advantage—that of a reduction in the stresses in the propeller that are produced by the explosion impulses. As these stresses are often the critical ones in determining the sizes of propeller parts, the result is that for a given engine power and propeller speed the weight of the propeller for the two-row engine may safely be less than that for the single-row engine.

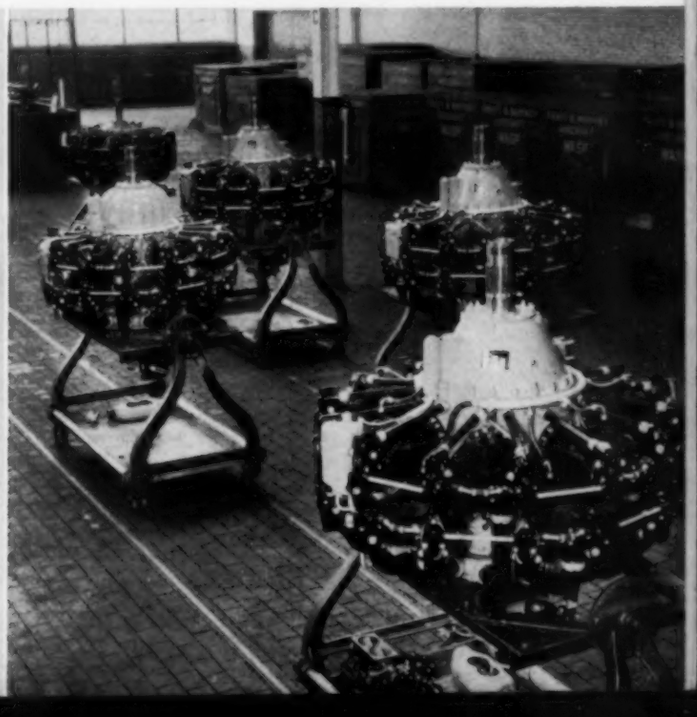
Service experience has clearly supported the belief that the two-row engine is less noisy than the single-row engine of equal power, due partly to the smaller cylinders, with resulting decreases in the energy of the individual exhaust impulses, and partly to the higher frequency of the exhaust pulsations which make the noise less objectionable in character.

Engine Cost and Maintenance

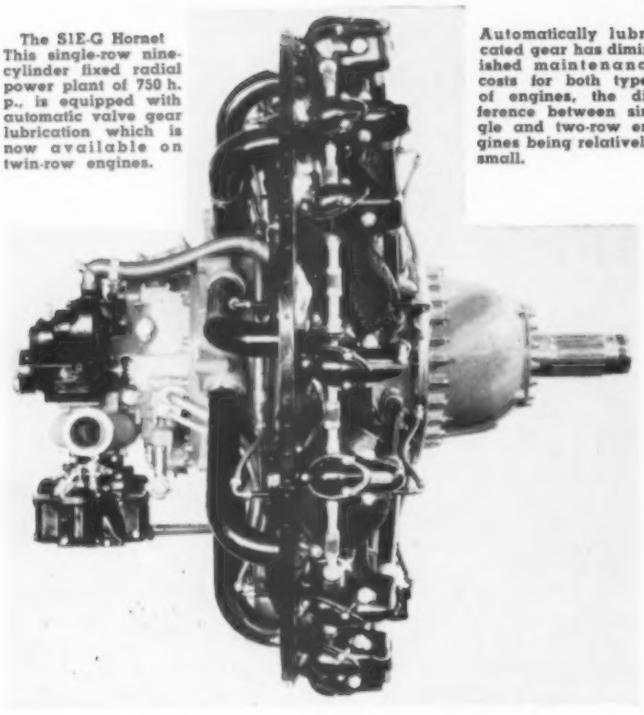
IT IS inevitable that in equal power and in equal production quantities the two-row engine must be more expensive to manufacture than the single-row type, simply because it contains more parts and consequently in-

Left: A cross section view of the 1000 horsepower Twin Wasp shown on opposite page. The cylinders of the front row, together with their valve gear, resemble very closely the cylinders of the single-row engine; the cams and valve gear for rear cylinders are behind instead of in front with corresponding modifications in the cylinder heads. Right: Twin Wasps and Twin Wasp Juniors ready for final inspection, shipment and immediate service.





The S1E-G Hornet
This single-row nine-cylinder fixed radial power plant of 750 h. p., is equipped with automatic valve gear lubrication which is now available on twin-row engines.



Automatically lubricated gear has diminished maintenance costs for both types of engines, the difference between single and two-row engines being relatively small.

volves more labor. The ratio of costs, however, is considerably less than the ratio of the number of cylinders and in fact even in present productitn quantities the ratio of selling prices is well below that ratio. Here, however, it should be mentioned that the use of smaller cylinders and the smooth-running characteristics of the two-row engine warrant the expectation both of a longer total life and of longer intervals between overhauls than in the case of the single-row engine, thus to some extent offsetting the differences in first cost and in the cost of individual overhauls.

In the servicing required from day to day, the difference between the single-row and the two-row engines is less than might be expected, chiefly because this servicing has consisted largely of valve gear lubrication, and the development of the automatically lubricated gear has diminished this item of labor so much, both for the single-row and for the two-row engines, that the difference in this respect between the two is relatively small.

Cooling

WHEN the development of large two-row engines was first undertaken, it was feared that it might prove very difficult to cool the rear cylinders adequately. Fortunately, however, the contemporaneous development of the close or pressure-type of baffle so reduced the quantity of air required for cooling that it has become relatively easy to insure to the rear cylinders an adequate flow of air that has not been heated by contact with the front cylinders. Another recent development in engine cooling, the controllable cowl, has made it possible to obtain an adequate total flow of air, even under difficult conditions, such as in climb, and at the same time to reduce both the air flow and the resulting drag under the easier cooling conditions of cruising.

The dimensional relations between the cylinders of single-row and those of the two-row engines tend toward inherently better cooling characteristics for the latter, since in relation to heat to be dissipated more cooling surface is available in the smaller cylinders than in the larger ones. Therefore, in actual service with equally up-to-date cooling equipment, the two-row engines involve no greater cooling difficulty than the single-row type.

Engine Dimensions

ALTHOUGH overall length of the two-row engine is somewhat greater than that of the corresponding single-row, this disadvantage is offset by a reduction in overall engine diameter, which, in a typical case, amounts to about 20 per cent; this corresponds to a reduction in frontal area of about 35 per cent.

Several favorable characteristics of the two-row engine are due to this small overall diameter. One of the most apparent of these is the improvement in visibility, especially in single-engine machines. Another consequence of the smaller diameter of the two-row engine is a reduction in drag, and, thanks to the improvements already mentioned in cowls and baffles, this improvement in engine drag characteristics does not have to be bought at a sacrifice in cooling characteristics. The effect of the reduction in engine drag on airplane performance naturally depends on the design of the airplane; it is greatest in fast machines of clean design, especially those with small fuselages or nacelles, and is least in airplanes of such design that engine drag constitutes a relatively small part of total drag.

Propulsive Efficiency

A third beneficial effect of the reduced diameter of the two-row engine as compared with that of the single-row is an improvement in propulsive efficiency, assuming, of course, that both the single-row and the two-row engines have geared propellers. For a typical case, this improvement in propulsive efficiency amounts to about two per cent, both at maximum speed and at cruising speed, thus diminishing by that amount the fuel required for a flight of given distance at a given airplane speed. Alternatively, the improvement in propulsive efficiency may be utilized to increase the maximum speed of the airplane.

Comparative Low Weight

An incidental advantage of the small diameter of the two-row engine is that it offsets the effect of the larger number of cylinders on the weight of cooling baffles and of exhaust collector, with the result that the combined weight of cowling, baffles, and exhaust collector is no greater for the two-row engine than for the corresponding single-row.

It should be noted that comparisons between the two-row engine and a single-row engine of equal power do not tell the whole story, for the constant demand for increases in the power of aircraft engines has brought the single-row engine to a point where the limitations imposed by increases in cylinder size and in brake mean effective pressures are close at hand. With the two-row engine, however, these limitations are still far enough away so that they do not operate as a serious restriction on engine development, and with the two-row engine it should be possible to continue for a considerable period to meet the requirements for higher powers without sacrificing the advantages of the air-cooled radial that for so long have made it the dominant type among airplane power plants in this and many other countries.

A Door-to-Door Seaplane Service

This second article in a series on water flying details the time and money saved by float-equipped airplanes between New York and Philadelphia whose terminals are five minutes from mid-town.

By A. M. Brown

THE recently formed Keystone Airlines are now operating a 50 minute seaplane schedule between New York City and Philadelphia utilizing the rivers of both cities for their landings. The actual running time from downtown Philadelphia to midtown New York is 50 minutes and both terminals are within a five minute taxi ride of business and hotel districts.

This is the first scheduled air line to benefit by the saving in time made possible by flying directly to the cities rather than to the outlying airports. All cities located on bodies of water offer similar possibilities and it is felt that before many more years pass, water landings will lead to an entirely new field in air transportation—that of the short haul run.

All air passengers realize that in most cases the time saved in air transportation over that available on railroads is negligible on runs of less than approximately 200 miles, due to the length of time required in going from the city centers to the airport. Water landings at city centers will remedy this condition giving air lines an advantage on short hauls equal to that now enjoyed on the longer runs.

A study of comparative running times between air lines using the outlying airports and that using waterfront landings between New York and Philadelphia is interesting.

Average time from New York to Newark Airport in a bus or cab	1 hr.
Average flying time Newark Airport to Philadelphia Airport (Camden)	35 min.
Average time Phildelphia Airport (Camden) to Philadelphia center	30 min.
Total elapsed time via landplane	2 hrs. 5 min.
Fares for airplane part of trip	$4.35
Fares for airport buses $1.00 plus $ .75	1.75
Total fare	$6.10
Scheduled time midtown skyport on East River New York to Philadelphia Base on river	50 min.
Fare	$4.41

Thus even assuming that the airport bus stations are nearer the passenger's destinations than the seaplane bases (which is not always the case), it can be seen that the seaplane line cuts the elapsed time in one-half. A saving of at least one hour on a 2-hour trip. Furthermore, the seaplane line is far less expensive than the slower landplane route.

The figures become even more interesting when one considers that the landplane routes are using the most up-to-date and speedy equipment while, for the present, the water airline is using now obsolete equipment which cruises at approximately 100 m. p. h. Consider the advantages of the water route if modern transport seaplanes cruising at 190 m. p. h., such as the Vultee on floats, were used.

Keystone Airlines' Tri-motor Ford Equipped With Floats For Inter-City Service
In spite of the slow cruising speed of the Ford, Keystone's schedule between New York and Philadelphia cuts "door-to-door" time in half and makes the one-way trip in 50 minutes. Flying time of landplanes is 35 minutes but added to this is 1 hour and thirty minutes taxi time to and from outlying airports.

TEXAS TOUR

A successful end-of-the year state air tour foreshadows more for next year, with talk going on of a trip to Mexico City.

By C. C. Scott

Director, Aviation Sales
Humble Oil & Refining Co.

FOLKS are always talking about aviation wiping out international boundaries and making far away nations next-door neighbors; but when aviation wipes out rivalry between two neighboring states, that is something else. We refer particularly to a tradition down in our deep Southwest that exists among the flying fraternity of Oklahoma and Texas.

When Oklahoma holds its annual state-wide tour, the Texans go along as if they had been living in the Sooner state all their lives; and when Texas strikes out on one of its two or three tours per year (the state is so dern big one tour won't cover it) the Oklahomans come down in a flock to insure the success of the Texas ventures. If either state held a tour without representatives of the other, we hazard the opinion something serious like secession would take place.

The South Texas leg of the Texas Tour, which augmented the North Texas Spring tour, left Dallas with some twenty planes and fifty individuals November 12 at 10:00 a. m. Most of the entrants were private owners and it was indeed an impressive sight to see so many late model ships gathered into one covey; Waco, Beech, Stinson, Fairchild, Cessna, Porterfield, Aeronca and Monocoupe were all represented. Adding to the prestige of the tour and another impressive note was the number of ladies along, with Jimmy Kolp of Electra flying her own Spartan and Mrs. Bub Merrill, Mrs. Andy Anderson, Mrs. Mack Clark, Mrs. Bob Sellers, Mrs. Hugh Drane, Mrs. Bob LeSage, Mrs. George English, Mrs. A. D. Martin, Mrs. J. B. Nehls and Mrs. C. C. Scott were all along with their husbands. But, as intimated above, the Oklahomans on the Texas Tour were just about the most impressive sight, what with "Uncle Jim" Brazell, Charlie Short, Jerry Sass, Mark Huckins, L. T. Dutcher, George Wales, and the three Oklahoma "Buzzards," John (Elevator) Burke, Cliff (Iron Man) Giblet and Jim (Neversleep) Clarke. Moss Patterson, who was off hunting in the wilds of New Mexico, stood the boys up this season and was sorely missed.

Although drop-ins were frequent along the five-day route, others who "checked in" officially with director Buck Rowe include (other than the above): H. C. Barrow of Electra, R. M. Stevens, Hal Henning, Doc Booth, Roy Harding, Luther Thomas, Jack Phillips, Ralph Lockwood (who came all the way from Atlanta), Bob Scholes and Dr. Huddleston of Galveston, Helen Johnson, Milt Hebert, Al Tuerpe, who joined the tour later on after the first two days, and your own editor, George Haddaway of *Southern Flight*. Although the husbands of the ladies above mentioned were under serious handicap, the variety of personalities among those listed guaranteed no dull moments.

Palestine was the first stop and a delicious luncheon was served by the civic clubs and Chamber of Commerce. The menu included Elk, Moose and Antelope meat which was furnished by one of Palestine's famous hunters who had just returned from the Northwest with meat galore. And hats off to the Palestine *Daily Herald-Press* which spread the Tour all over its pages.

Thence to Beaumont for the night stop. Never in the history of any tour has such elaborate entertainment and warm hospitality been extended airmen as was experi-

A part of the gang who flew on the southern sector of the Texas Air Tour in November, lined up on the Beaumont Municipal Airport. Some twelve faces are absent from this, the most complete group picture of the Tour. "Uncle Jim" Brazell of Oklahoma City, who flew "via Houston" from Palestine, was just landing when the picture was snapped.

enced in this South Texas bee-hive of aeronautical activity. Larry Fisher, Frank Bertschler, Mr. and Mrs. B. F. Edgar, members of the Wing Over Club and Chamber of Commerce officials were responsible for the hale and hearty wide-open reception and entertainment. Participants will not soon forget the splendid banquet at the LaSalle Hotel and the festivities at Bill Borden's Nite Club which included dancing and ceremonies of our own. High-lights included a trumpet-playing competition by Charlie Short and George Haddaway which ended in a draw (both were terrific!) and the sale of Air Tour Medicine by the famed Dohocta Bohocahocahackihack over the Air Tour station XIT. Headlines in the Beaumont *Enterprise* next morning blared forth with "AIR TOURISTS 3 HOURS LATE IN DEPARTURE." Nuf said.

ON TO Galveston-by-the-sea for the morning stop November 13th. Lunch was furnished by the Chamber of Commerce. The mayor and a motorcycle escort attended us to and from the airport. Thanks to Bob Scholes and Dr. Huddleston for a grand time. From Galveston to Corpus Christi and on to Brownsville, where we were honored to be met by a large crowd of dignitaries including Major Perez, Chief of Mexico Civil Aviation, who welcomed us to Mexico and invited us to include Mexico City on the itinerary next year. His suggestion has started the conversation to buzz of such a voyage and many Texans and Oklahomans are hoping that such a trip might materialize. In Brownsville the entire troop was entertained after arrival with a cocktail party and reception at the home of Helen R. Johnson, who needs no introduction either as a seasoned transport pilot or as a perfect hostess. Matamoros, Mexico, was the scene (and what a scene) of the evening banquet at which we had a sumptuous repast of quail and venison with all the trimmings. Remember the description of the third day on the printed schedule of the tour? It reads: "Third Day—Brownsville—Educational (?) look at Valley, Port, Mexico, etc. Bring Spanish book and money for perfume. Peace offering will help on return to base." Wise was the author of those directions. We suspect in those lines the wit and wisdom of our able director, Buck Rowe.

The fourth day, November 15th, being Sunday, we gathered up the remains and headed up the beautiful Rio Grande Valley with a stop at McAllen, where we had the largest airport gathering on the tour. The entire town must have turned out to welcome the good-will flyers. Such sights as that justify the work and time spent in selling aviation to towns and cities and to their inhabitants who pay the taxes and patronize the industry.

Thence to Laredo where we were entertained at lunch by the Chamber of Commerce, who invited us to spend from two to four days there on the next journey. Senor Buchmister, Chief of the Mexico Tourists' Bureau, was one of the spokesmen and gave us a cordial invitation to Mexico, adding more fuel to the fire that is already burning in the desire to include Mexico in 1937 plans.

The afternoon flight over the mesquite laden country into San Antonio brought home the thought that more landing facilities should be constructed between Laredo and the Alamo City. Beautiful weather and a tail wind shoved us along in high spirits and we arrived in San Antonio Sunday evening before sun-down on the newly-improved Stinson Field where we were received by another large crowd and another police escort. Fred Herman, manager of Stinson Field, was in charge of the job and made us most welcome. Headquarters at the Gunter Hotel were well chosen. Artie Compton, hotel manager, made every concession for a splendid visit. A banquet was followed by a soiree of dancing and fun at the Olmos night spot, the only "joint" on the itinerary which resented the flying crusaders and stymied the Tour's own floor show, so thoroughly appreciated at every other stop. "Gramma" Anderson must have hidden her husband somewhere in the hotel, for they alone among the inveterate night-hawks, were absence when the roll was called.

Monday morning, November 16th, the tour was officially ended. Up and away early the gang scattered for their home ports—all except Burke, Giblet and Clarke of the Sooner contingent, and Barrow and the Dohoctah representing the Texans, who, it is understood, bid several hundred San Antonions adieu from the eighth floor, Houston Street side of the Gunter. There were no official Air Tour spectators of this colorful wind-up, but it is rumored these self-appointed good-willers did the job in the grand style, what with Burke's 75 gallon (tequila) hat, the autographed ceiling-fan blade and the disruption of traffic on the streets below.

So the second sector of the 1936 Texas Tour was an unparalleled success. Other states might well consider the Oklahoma-Texas practice of cooperative attendance when they plan their tours for next year. It's an impressive factor to the thousands of citizens who read, see or hear about the tour. Surely no aviation activity can compete with the good-will air tour in bringing private owners and operators closer together in friendship and flying and at the same time spread the gospel of practical aviation throughout their several states. The Texas Tour —winter version—proved that point above all.

PACIFIC SHOW TO SPLIT PROFITS

CLIFF HENDERSON, managing director of the Second Annual National Pacific Aircraft & Boat Show to be held at the Pan-Pacific Auditorium in Los Angeles, March 13 to 21, has announced that more than half the floor space of 110,000 feet has been disposed of.

More than twenty-six different types of aircraft will be on exhibition together with all the leading makes of engines powering the newly designed aircraft. Accessory manufacturers will also be represented on a larger scale than ever before.

Officers and directors of the California Air Industries Association are as follows:

H. H. Wetzel, vice-president and general manager of the Douglas Aircraft Company, President; W. P. Balderston, President of the Pacific Scientific Company, secretary; Palmer Nicholls, President of the Pacific Aeromotive Corp., vice-president and D. E. McDaneld, sportsman flyer, secretary.

Assisting Cliff Henderson in the management of the show will be Phil Henderson, Business Manager, with the following executive staff: Joseph A. Helget, comptroller, "Lou" Daniels, executive secretary, and Lyman H. Johnson, director of promotion.

The Pan-Pacific Auditorium is the second largest building of its kind in the country and is ideally suited to handle the huge transport planes and yachts, cruisers and sailboats to be exhibited. Floor space totaling 110,000 square feet with the airplane doors being sixty feet wide and 17′ 6″ high make it possible to show the largest aircraft built without disassembling them completely or knocking out walls as has been the custom in the past.

Entire Nation Mapped for Airmen

Completion of the 87th unit in the Sectional Aeronautical Charts series guarantees a strip map especially designed for the airman's use over any part of the United States.

THE publication of the final chart in the Department of Commerce series covering the entire United States was announced last month by Eugene Vidal, Director of Air Commerce. The charts were compiled and printed for the Bureau of Air Commerce by the Coast and Geodetic Survey. Each chart is approximately 40 by 20 inches in size, representing an area about 300 miles from east to west and 150 miles from north to south. Joined together at their edges, the 87 charts would make a map of the United States about 32 feet wide and 20 feet high. The assembling of all the maps into one gigantic map will be done at the New York Aircraft Show for the first time, January 28.

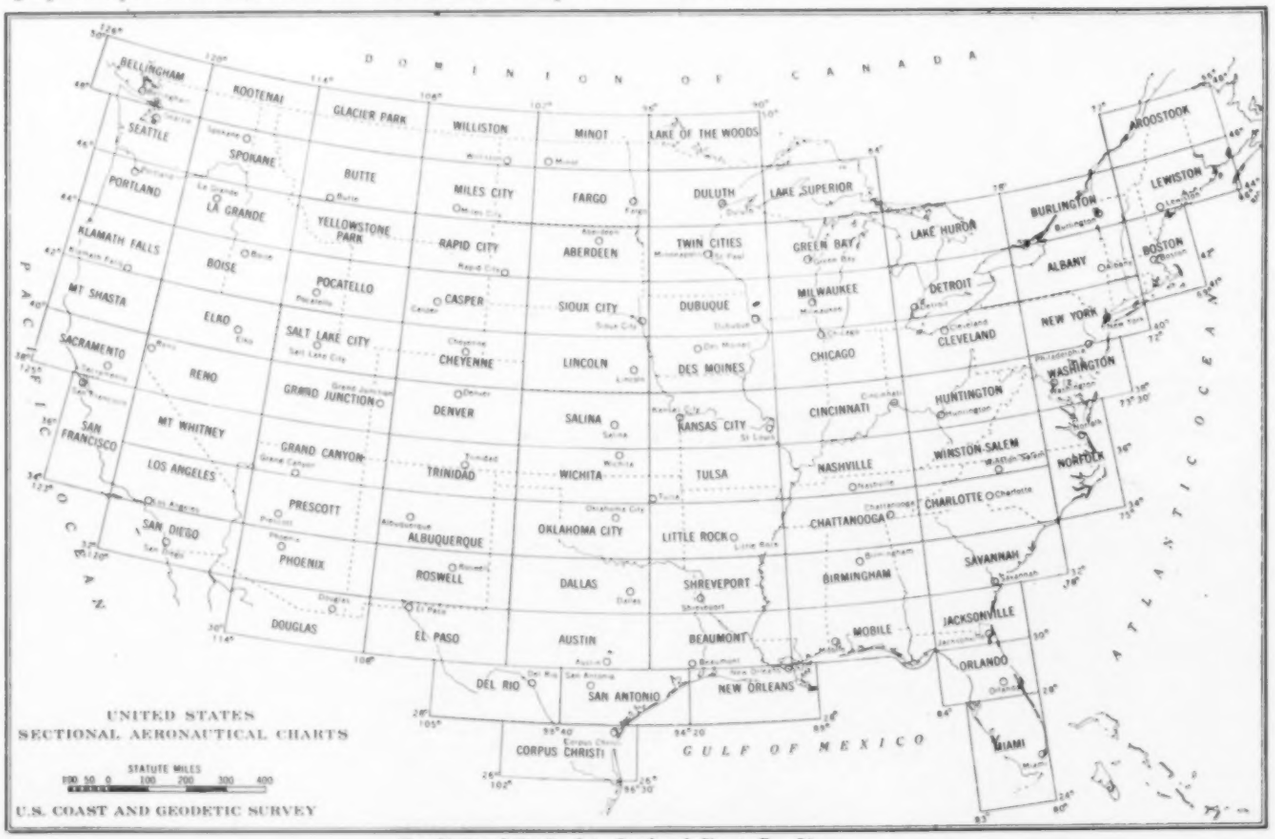
Designed especially for cross-country navigation, the sectional charts have as their bases an accurate representation of the political boundaries, rivers and lakes, cities and towns, railroads, Federal and State highways and elevations of the ground above sea level. These features are set forth in black and color, and superimposed upon them are the features that are particularly significant to airmen, such as airports, intermediate and other landing fields, seaplane anchorages, beacon lights, radio stations on the Federal Airways System, outstanding obstructions and magnetic variations. These features are shown in red so that they will be particularly prominent.

The original compilation of the charts is especially interesting. Reference was made to other maps, geographical publications, and Bureau records (for airports and air navigation aids). Then a proof of the compilation was sent into the field to be checked in flights over the territory. An airplane carrying two men—the pilot and a flight checker—passed back and forth over the territory represented by the chart. The checker compared the map with what actually appeared below him on the terrain—making notes of features to be added or revised on the map. The proof then was returned to the Coast and Geodetic Survey for correction of drawings and reproduction. The first chart was issued in December, 1930. Completion of the original phase of the program (production of first issues of all units) has been accomplished earlier than originally anticipated through an allotment of PWA funds in 1934. At that time only 27 of the 87 had been issued.

With PWA funds available, the force of cartographers and draftsmen in the C. & G. Survey was greatly enlarged and a special flight checking section organized in the Bureau, the former agency supplying 11 flight checkers and the Bureau contributing 12 pilots and 10 mechanics.

New editions will be issued at frequent intervals so that changes can be shown and maps be kept up-to-date. Some charts are revised as many as three times a year.

The maps are sold at 40 cents each, or at 25 cents each in lots of 20 or more. Orders are received by the Director, Coast and Geodetic Survey, Department of Commerce.



The Nation Split Up Into Sectional Charts For Airmen
Each of the 87 Sectional Aeronautical Charts are designated by name. This map should be used as a reference in ordering from the Coast and Geodetic Survey. Note the shaded state boundaries.

The "Motoreel" Aircraft Antenna

A new variable length, weighted, trailing wire antenna permits a number of different transmitting frequencies and insures radiation of the transmitter's maximum power.

By Wm. P. Lear

A SUITABLE transmitting antenna for airplanes has been the subject of much consideration and research. There are three main types of antennae—the fixed type, fixed trailing wire and reel type weighted trailing wire.

The fixed type, owing to its short length, its low effective height and its high capacity, is relatively inefficient and used only on aircraft where limited range or extremely high frequency transmission is desired.

The airlines have found it advisable to use a fixed trailing type of antenna. However, the disadvantages to this type is that constant whipping and abrasion shortens their length and they require frequent replacement. The necessity for replacement is so prevalent that Transcontinental & Western Air, Inc., has developed an auxiliary antenna which can be released by remote control when the main trailing wire antenna becomes broken or lost.

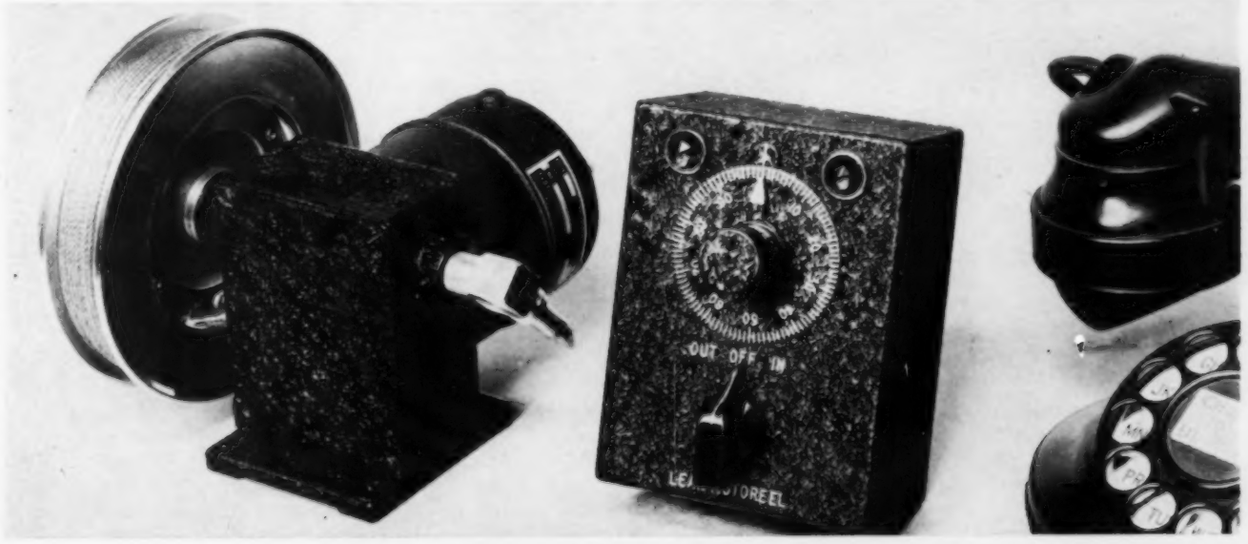
The reel type weighted trailing wire antenna has proven to be very reliable and considerably more efficient than the other two types, which, reduced to simple language, means greater transmitting range for a given transmitter output. However, it too has certain disadvantages, the main one being that the hand reel upon which the wire is wound must be placed in a position where the pilot can operate it. In most cases the transmitter has to be located in the back of the airplane, which necessitates running a connection from the antenna hand reel back to the transmitter. The disadvantage in this is the considerable loss due to radiation within the frame of the ship from this long lead wire. There is also the disadvantage that it requires considerable physical effort on the part of the pilot to reel the antenna in and out and it is difficult for him to judge exactly the length of wire he has extended. In an emergency it is sometimes necessary to land the ship promptly, in which case there is no time for the pilot to reach over and reel in the extended antenna, should it be out at the time.

For the private pilot, as well as for the airline, the problem of satisfactory transmitting antenna has been solved by a new piece of equipment which provides a variable length weighted trailing wire antenna with all the advantages of all three types antennae mentioned above and none of their disadvantages. It is known as the Learadio Motoreel. The reel itself may be located alongside the transmitter and the fairlead protruding from it arranged to emerge directly below and out of the belly of the ship. This practically eliminates radiation losses within the ship and makes the whole length of antenna effective for transmission.

THE rated power of a transmitter means very little. The amount of power in the antenna means a great deal. The Motoreel allows accurate matching of the antenna load to the output impedance of the transmitter, which insures radiation of practically all the power the transmitter is able to deliver. In many cases 50 watt transmitters are delivering only 5 watts to the antenna because of mismatch. It is obvious that in these cases it would be far better to have a 10 watt transmitter putting 10 watts actually into the antenna, which would result in greater transmitting range and considerable saving in weight and pay-load, not to mention decreased battery drain and lower first and operating costs.

With the Motoreel the pilot can properly match his antenna for a number of different transmitting frequencies. Pilots are realizing more and more the necessity for multiple frequency transmission. The engineering problem involved in matching a given length of antenna to various frequencies is quite difficult to solve. Being

(Continued on Page 26)



The Learadio Motoreel Antenna

A new development which permits full power output and selection of a wide range of frequency transmission. The weight of the Motoreel, together with its wire, swivel fish, remote control unit, flexible connecting cables, fairlead, etc., is less than 10 pounds. Note the comparative size of the Motoreel (left) and the remote control unit (center) with the dial telephone.

BEECHCRAFT MODEL 18

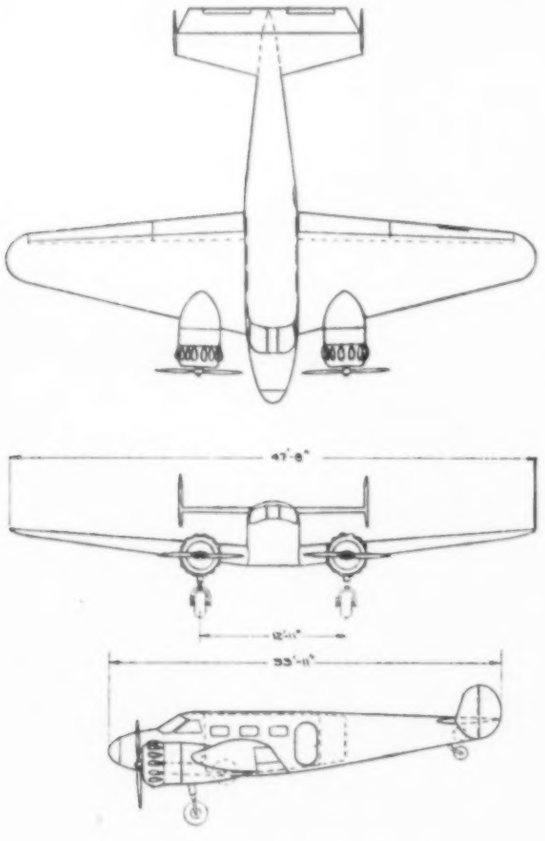
Advance information on the latest addition to the bi-motored executive transport family details many innovations in design and construction towards mass production methods.

By Creighton Merrell

THE Beechcraft Model 18 Executive Transport is the latest offering of the Beech Aircraft Corporation to a successful series of models primarily for the traveling business man and the charter flying operator. While radically different in construction and design from the familiar model 17 Beechcraft, the new airplane is in effect an answer to the same requirements in a more extensive and elaborate manner.

In outward appearance the new Beechcraft has all the earmarks of the conventional present day twin engined transport. Under the skin, however, are several basically new design innovations that distinguish it. The original specifications were not drawn until a wide survey among prospective users disclosed the important requirements that would have to be met in building an executive airplane of the size and type desired. Important considerations were found to be: low initial cost, low operating cost coupled with long flying range, cabin comfort and safety comparable to that found on airliners, ability to operate from small fields, and a structure which can be repaired in shops outside of the factory. All these specifications had to be met without sacrificing a relatively high cruising speed.

Under the direction of Mr. Beech and T. A. Wells, Chief Engineer, the new ship has been built to meet all of the above demands. In general the Model 18 is a twin engined low wing cabin monoplane of all metal semi-monocoque construction having an electrically retractable landing gear and tail wheel. Standard seating arrangement provides for six passengers in the cabin and two pilots forward. Standard power equipment consists of two Wright 760-E-2 seven cylinder engines having a total of 420 h. p. for cruising at 11,500 feet and with 700 h. p. for take-off, or, two Jacobs L-5 seven cylinder engines having a total of 420 h. p. for cruising at 8,000 feet and 600 h. p. for take-off.



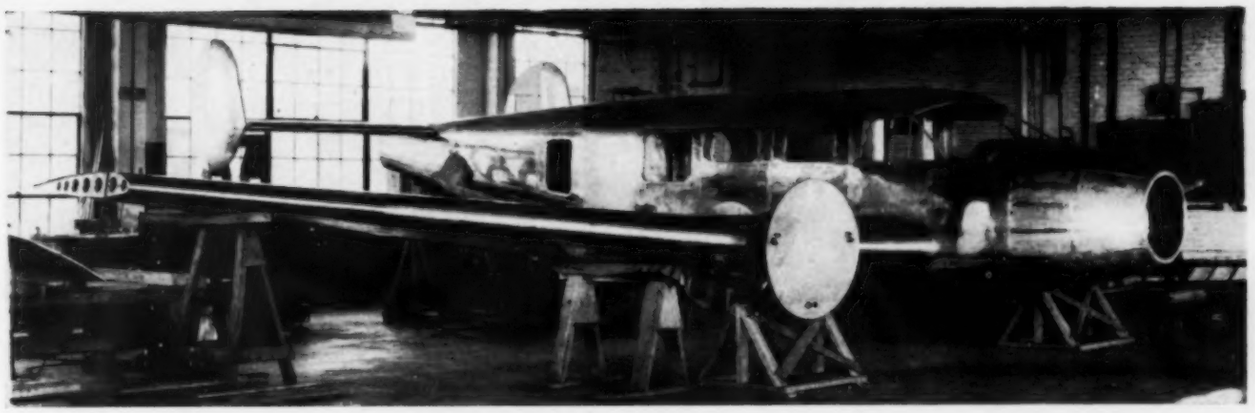
THE first airplane has successfully passed all Department of Commerce static load tests and will be test-flown in late December. Two Wright engines will power this plane. The club interior arrangement of two easy chairs and a long comfortable lounge offers unusual comforts. The utmost of pleasure and safety for the traveler is insured by completely modern sound-proofing, heating, and ventilation in a cabin fitted all around with safety glass. A separate compartment encloses complete rest room appointments and an outlet provided for an electric razor.

The construction of the fuselage is largely on a conventional pattern. The structure consists of built-up bulkheads to which are fitted extruded section stringers with smooth skin riveted to both. The arrangement is used for all sections of the fuselage from the nose to the stern. However, the construction of the center-section and the manner it is built into the fuselage is noteworthy.

In order to avoid the complications and high fabrication cost of the conventional all dural center-section employing built-up dural spars, a single heat treated steel tube spar has been developed which when fitted into the fuselage provides a convenient structure to carry the stresses imposed by the engines, landing gear, and wings. With the steel construction it has been possible to bend the spar back from the attachment points on the fuselage permitting placement of the spar just ahead of the front cabin bulkhead and yet at the proper position in the center section to best carry the loads. This arrangement leaves the cabin entirely unobstructed so that 100% of the space may be used as desired. The balance of the center-section structure consists of dural ribs, a light rear spar for the flap hinge, stringers and skin. An 80 gallon fuel tank is cradled between the engine compartment and fuselage on each side, behind the spar.

The wing panels are of simplified design. All severe bending stresses are carried by a heat treated welded tube mono-spar which bolts to the center section beam. This member extends through all critical sections of the wing and about half way to the tip is spliced to a dural girder. By this arrangement complicated structure in root section of the wing is avoided. The skin carries only drag and torsional stresses, except at the outer end where the skin in conjunction with the dural spar absorbs the low combined forces imposed. To the spar are fitted continuous dural ribs tied together by a light spar carrying the aileron and flap hinges. Extruded dural stringers extending span-wise of the wing complete the structure with smooth skin riveted to all parts.

The ailerons are of conventional dural sheet construction with fabric covering. A trimming tab mounted on



A recent construction photo of the twin-engined Beechcraft Model 18, which is expected to be test flown in late December. With Wright or Jacobs power, cruising speed of the new low-wing job is estimated at 180-185 miles an hour.

the left aileron type flap is also of the same type construction with fabric cover and extends inward to the fuselage. It is electrically operated by an independent motor permitting the flap to be used for take-off.

The wing section is of the N. A. C. A. 230 series tapered 3 to 1. After exhaustive wind tunnel tests the wing was built with a 3½ degree wash-out at the tip to overcome the cusotmary stalling characteristic found in the usual tapered type wing. Test results indicated that the tip section was first to stall.

The tail section consists of a conventional semi-monocoque stabilizer and dual fins. The rudders and elevator are built of welded tube covered with fabric. A trimming tab is mounted on one rudder and to each half of the elevator. The stabilizer is of ample area and faired into the fuselage contour.

THROUGHOUT all the design great attention has been paid to simplicity of construction and ease of repair. In production it is possible to rivet large sections of skin to the stringers on the bench before assembling to the wing, stabilizer, or fuselage. This speeds up the riveting operation and permits mass production. The skin material throughout is 52SH alloy with a higher fatigue limit than Alclad and an equally high corrosion resistance. A modified head 53ST rivet is used throughout as these rivets may be driven cold in the heat treated condition and also have a high corrosion resistance.

Repairs to the engine mount and landing gear fittings may be made by ordinary mechanics without endangering the heat treatment of the steel spar. Due to the general design it is possible for repair stations to overhaul practically any part of the ship by use of conventional tools and standard materials.

The retractable landing gear is of simple design and construction. Basically it consists of a single forked leg to which is attached an arm. One end of the arm slides on a tube inside the nacelle and when the gear is retracted the leg swings backward into the nacelle. In this position the wheel projects slightly outward permitting belly landings to be made without damaging the cowling on the nacelles. When the gear is down the arm acts as a drag brace for the leg. The air oil shock absorber has a vertical travel of eight inches and this combined with 29x13x5 low pressure tires will allow a landing descent rate of 600 feet per minute without exceeding two-thirds of the design load. The type of tires employed also facilitate take-off and landing in soggy or sandy fields as they reduce tendency to bog down, even when carrying full load. Both landing gear and tail wheel are electrically retractable in four seconds and may be operated by hand crank in emergency. Brakes are actuated by hydraulic pressure.

Sound-proofing for the cabin consists of Seapak with kapok felt used around openings in the walls, and the ventilating system is controllable by the co-pilot with heat entering the cabin from ducts along the wall at the floor. Sufficient room is available in the spacious unobstructed cabin to install cupboard, desk, or any other convenience when the club interior arrangement is desired. Two baggage compartments are provided; one is located at the rear of the cabin and access may be gained from the cabin while in flight. The other is built in at nose of the fuselage.

Most notable item of the pilot compartment is the moulded safety glass windshield. This enhances the exterior lines at the nose of the ship and improves the vision of the operator. The two sections of moulded glass are separated by a sheet of flat glass in the center of the windshield, and none of the sections are movable. To insure vision in bad weather a wiper moving parallel to the air stream keeps the center panel of glass clear. In case of sleet formation hot air ducts are provided which are more than adequate to keep the glass free of ice. Individual dual wheel control is provided, and adjustable seats add to the comfort of the pilots. Fire extinguishers located in both engine nacelles can be operated from the control board if either engine should be threatened by fire. A completely equipped instrument panel is arranged so that both radio receiver and transmitter are located in the center. This eliminates the difficulties and hazards of remote control and by use of a reel antenna and different crystals it is possible to operate on a wide band of frequencies without any inconvenience.

Despite the economy of power the performance figures are high. With Wright engines the cruising speed is 185 m. p. h. at 11,500 feet, with an initial climbing rate of 1,250 feet per min. With one engine the airplane will climb to an altitude of 8,500 feet. Carrying six passengers, two pilots, 300 lbs. of baggage and 125 lbs. of equipment the cruising range is 475 miles. With two Jacobs engines the cruising speed is 180 m. p. h. with an initial climbing rate of 1,200 feet per min. With one engine the ceiling is 8,000 feet. The gasoline consumption for both makes of engines at cruising revolutions is only 35 gallons per hour. All altitude figures are given from sea level.

Dimensions and weights:

Span	47 ft., 8 in.
Length	31 ft., 11 in.

(Continued on Page 26)

News of the Month in Review

The Manufacturers

STEARMAN-HAMMOND AIRCRAFT CORPORATION held open house on November 22 at their new factory in South San Francisco. Some 1,500 visitors attended. Located one-half mile from the San Francisco Municipal Airport on U. S. Highway No. 101, the plant has over 25,000 feet of floor space devoted to assembly lines, store-room, heating plant, paint rooms, etc., with executive offices and engineering departments located in a one-story ultra-modern building that fronts the entire width of the factory. Operations have already started and the first ship should be completed before the first of the year, with deliveries for sales scheduled for March. Lloyd Stearman is president of the new corporation.

SPARTAN AIRCRAFT COMPANY of Tulsa has announced a new military model known as the "Zeus," patterned closely after the Spartan Executive Transport. The new all-metal, two-place attack-bomber boasts a high speed of 200 m. p. h. at 5,000 feet and a cruising speed of 190 m. p. h. at 8,000 feet. Armament and equipment arrangement is varied to suit any particular usage; it can be had as a two-place fighter, a two-place attack-bomber, or two-place observation. Either the 450 h. p. Wright R975-E or the Pratt & Whitney Wasp Jr. SB is optional.

LOCKHEED AIRCRAFT CORPORATION has announced delivery of three Electras to the U. S. Army Air Corps. Similar to those in use by the Navy and Coast Guard, the new equipment will be used for the transportation of personnel by the Air Corps staff. Orders for Electras have also been received from three European countries and one South American company. The four orders are from British Airways, L. O. T. Airlines of Poland, Industria Aeronautica Romana of Roumania, and Linea Aeropostal Venezolana of Caracas, Venezuela. All are standard commercial aircraft.

FAIRCHILD AVIATION CORPORATION have announced the sale of airplanes and deliveries during the past month to the following owners in the South and Southwest: Strake Petroleum, Houston, Texas (Fairchild "45"), Russell Lambert, Pine Bluff, Arkansas ("24"), R. L. Harrison, Albuquerque, New Mexico ("24"), John E. Soper, Gallup, New Mexico ("24"), and Warren C. Prosser, Denver, Colorado ("24"). In addition to the foregoing four "45's" were sold for United States and Foreign government service.

RYAN AERONAUTICAL COMPANY will exhibit their 1937 series Ryan S-T at the New York Aviation Show in January. Sam C. Breder, Ryan representative, will be in charge of the display. A current back log of 1937 orders representing a total valuation of approximately $120,000 guarantees busy days ahead for Ryan. Some departments are working on a three shift, twenty-four hour basis to supply the demand.

TAYLOR AIRCRAFT COMPANY announces the approval of dual ignition installation on Continental powered "Cubs" and offers twin magnetos and accessories as optional equipment. Two fleets of new "Cubs" recently began tours of the south to carry passengers in smaller cities not often visited by airplanes. Each fleet comprised three planes and an automobile trailer which provides living quarters for the crews. Each fleet is a private unit, independent of the company. The purpose is to demonstrate the utility of this type of equipment in rural sections where landing facilities are plentiful.

SPERRY GYROSCOPE COMPANY pointed out in a recent bulletin that twenty-eight employees of the company travelled over 75,000 miles by air over a three-month period. With the exception of a couple of trips on the *Hindenburg*, four coast-to-coast flights, and a one-way trip to Rio via Buenos Aires, this mileage consists entirely of relatively short trips averaging about 400 miles. One employee made seven trips. The record for the period was considered representative of the amount

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of air travel done by Sperry employees and not out of the ordinary.

SUMMERILL TUBING COMPANY has released a comprehensive and useful publication entitled "Aircraft Tubing Data." A great deal of the information is new, particlarly data on Column Strength Curves which are plotted for the first time to cover 75,000 min. yield and 85,000 min. yield. Data on Properties of Steel Tubing is also assembled in a more convenient form for quick reference; in addition to rounds, similar information for streamlines and special round cornered squares are covered. Students may procure copies at a below-cost price of one dollar.

BEECH AIRCRAFT CORPORATION deliveries for the past month include a C17B to Thomas J. Masse of Sydney, Australia; a C17 special to Richart T. Davidson of Medford, Oregon; a C17R to the Empire Oil & Refining Company of Bartlesville, Oklahoma; a C17 to Japan Air Transport Company of Tokyo, Japan, who are now under license to manufacture Beechcrafts in the Far East; a C17R ski equipped plane to W. Leigh Brintell, MacKenzie Air Service of Edmonton, Canada; and a C17R to the Bureau of Aeronautics, Navy Department, Washington, D. C.

Scheduled Air Transport

DELTA AIR LINES' eastbound-by-daylight flight on the Dallas-Atlanta run December 17th was given the title "The Wright Flight" in honor of the Wright brothers, who thirty-three years ago made the first flight in a heavier-than-air machine. City officials at all scheduled stops gathered at the airports to help celebrate the occasion. At Charlestown, S. C., eastern terminus of Delta, a special flight flew over Kitty Hawk and dipped in salute to the monument which marks the historic spot where the Wrights first took to the air.

AMERICAN AIR LINES last month elevated Charles A. Rheinstrom to General Sales Manager and simultaneously elected him a vice-president. Rheinstrom, who assumes his official duties on January 1, 1937, has been with American's sales department and that of Transamerican Airlines, a predecessor company, since 1928. Announcement was also made that American Airlines carried nearly three times as many air passengers in 1935 than were carried by all combined air lines of France. Based on passenger reports as of December 1, 1936, C. R. Smith, president, predicted American's total for the current year would be more than four times that of the France 1935 total of 60,719.

A second order for five additional Douglas Flagships was placed November 27, adding to the fleet of twenty Flagships already in service. Five will be delivered in February and five in June, 1937.

CHICAGO & SOUTHERN completed the most active month in its history when November passengers exceeded by 21% those carried in October, which had been the company's best month. A new high in cash sales was also established. Compared with November, 1935, the company shows an increase in sales of 293%. The line attributed reduction of fares as largely responsible for the unprecedented upswing.

UNITED AIR LINES' order for 28 Douglas DC-3 transports is now being filled by the manufacturer. Five were in possession of the air line company December 1. Non stop service between Chicago and New York will be inaugurated shortly after the first of the year when fourteen passenger deluxe type Douglases will be placed in service. Although United will continue to operate its modernized fleet of Boeing 247-D's, the sale of a substantial portion of same is now under way in order to make room for the new Douglas equipment. Continued record-breaking traffic featured the first nine months of operations this year with a total of 163,000 revenue passengers, 1,620,410 pounds of air express and 4,334,771 pounds of mail on the official record.

TRANSCONTINENTAL & WESTERN AIR has announced a traffic increase of 122 per cent during November in comparison with November, 1935, figures. Two new directors recently added to the Board are Paul E. Richter and Howell Van Gerbig. Richter is vice-president in charge of operations. The largest group movement of passengers in a single day took place December 13 when the entire distributor sales force of the Alemite division of Stewart-Warner Corporation flew from New York to Chicago on TWA Skyliners for a three-day convention.

EASTERN AIR LINES has completed training twenty-two flight stewards, who have supplanted stewardesses over the company's system. On December 15th, the first direct air line route from Houston, Texas, to New York City was inaugurated with a dedicatory flight between the two cities. Eastern acquired the Wedell-Williams line between Houston and New Orleans and have placed Douglas equipment into the daily round-trip service between Houston and New York City via New Orleans, Montgomery, Mobile, Atlanta and Washington.

Ports of Call

Correspondence from the Airports and Airways

Atlanta, Georgia

By B. F. Peacock

The Eastern Air Lines and Delta Air Lines have consolidated their Transportation offices in the Administration Building, and we are sure it will go over with a bang.

Whitey Henderson, formerly of Blevins Aircraft Corporation, has now taken a position with Delta Air Lines in the Maintenance Shop. We wish you lots of luck, Whitey.

"Pete" Clay, of Air Services, has just purchased a new Stinson Gullwing. Eighteen Aeroncas arrived in Atlanta, Georgia, Monday, December 7, stopping at Pete Clay's hangar, en route to Miami, Florida, to attend the Air Races.

Mr. J. F. Byrd, President of Blevins Aircraft, and Mr. L. G. Mason, President of Aviation Supply Company, and also the Montgomery School of Aeronautics, have just returned from a trip to the Taylor Aircraft Company, where they attended the Taylor Company's Annual Convention.

Mr. Art Bussey returned from Mexico City, after having delivered a Canadian built Fairchild to the Mexican Irrigation Committee. Mr. Bussey has now returned to New York in his Flamingo after stopping over a few days in Atlanta.

The Atlanta Municipal Airport was honored in having Major D. H. Young of the Pure Oil Company, Columbus, Ohio, and Mr. Jimmy Wheeler of the Shell Aviation Company, St. Louis, Missouri, stop over in Atlanta while en route to the Miami Air Races.

Among the large number of pilots who attended the Miami Air Races, the following girl pilots stopped in Atlanta en route: Misses Loretta Leonard, Enid, Oklahoma; Ruth Harman, Kenosha, Wisconsin; and Mary Nicholson, Greensboro, North Carolina, two of these girls being Transport Pilots and the other a Limited Commercial.

Charlie Ford, local veteran flyer, who has been out of the game for years, is back on the active list again after buying a used Aeronca from John Byrd of Blevins Aircraft. Ford was in the flying game back in 1924, having been taught to fly at Candler Field by Captain A. B. McMullen (now state director of Aviation for Florida). Ford later barnstormed with Lt. George Vickery, connected up with Errett Williams of Greenville, South Carolina, was appointed dealer for the Alexander Eaglerock in Georgia and Alabama, operating as Ford Aircraft Sales Company, subsequently took a job as agent for the Spartan School of Aeronautics, then a permanent job with the City of Atlanta in 1927, flying until 1930, when he retired from aviation until 1934 at which time he started taking solo time in a Taylor Cub. Now with his own plane again he expects to meet a lot of his former pals around the country on week-end trips and would appreciate his old friends corresponding with him.

Beaumont, Texas

By Larry J. Fisher

Biggest event in Beaumont in months—or years—was the inaugural run of the "City of Houston," Eastern's big Douglas, on December 15. Mrs. Harry Williams, Eddie Rickenbacher and other distinguished passengers were welcomed during the brief stop by a local committee of air-minded citizens. W. M. Crook, local attorney and a pioneer aviation enthusiast here, made the didicatory speech and later flew to Houston with the party. Pilots on the first flight were Lee Willey and Walter Shaeffer.

Eastern actually took over on December 1 but the old Wedell-Williams Lockheeds were kept in service until the inaugural run. H. M. Brown is Station Manager. Eastern will establish a downtown office and enclose the airport office in glass. Two-way radio and all modern airline accessories have been installed.

A new operator at the field is Glen Parker, formerly of Westfield, Mass., with a Wasp powered Stinson, the only cabin job on the airport. Other operators are the Fairchild Flying Service (W. N. Vickers) and the Gulf Flying Service (B. F. Edgar).

Under new ruling of the city, only licensed aircraft may now hangar at the muny field. Several unlicensed ships were moved off and a strict observance of D. of C. rules is expected in the future.

Mr. and Mrs. Dick Williams, who formerly operated here, came through on a brief visit. Visitors have been rather scarce with the bad weather and student activity has been hampered also.

Our local gal fliers, Lois Neel, Dorothy Edgar, Jackie Bridgewater and Ruby Reed, enjoyed a brief visit with

Aeronca Low Wing $2750.00 to $3250.00
Aeronca High Wing Trainer Now $1590.00

The *"Sign of the Times"*

BETTER SHIPS FOR LESS MONEY

The "Aeronca" is recognized as the best buy in the U. S.

May be purchased on time payment plan. 40% down, balance 12 monthly payments.

★

Dallas Aviation School and Air College

LOVE FIELD - - DALLAS, TEXAS

Mrs. Harry Williams when she arrived on Eastern's inaugural flight.

An appropriation of $25,000 is being sought from the next congress for the purpose of lighting the route between Houston and New Orleans (via Beaumont). Lighting is the only thing our airport lacks, since we now have decent runways, adequate for the largest aircraft.

Your correspondent has discovered a new and practical gadget for pilots—the Pierce Chronograph—a four in one combination of wrist watch, stop watch, telemeter and tachometer, sold by Nicholas-Beazley.

Especially interesting to the pilot is the telemeter device. A pilot in flight, upon seeing lightning, presses the button which starts the sweep second hand into motion. Upon hearing the sound of thunder, he stops the hand. Where the hand points, it will show him (on the red outside scale of the watch) just how far away in miles, or fractions of miles, the storm is from his point.

Useful also is the stop watch — handy for checking ground speeds and the like. The small dial at the top records the elapsed time in seconds or fifths of seconds, thus useful for the amateur photographer.

The tachometer feature records the number of miles per hour an object is moving. If the distance is covered within one minute, the first line of the scale is read. Within two minutes, the second line and within three minutes, the third line.

Birmingham, Alabama

By Earle Wheeler

The Alabama Aviation Commission is composed of Theodore Swann, Birmingham, Chairman; I. B. Rutledge, T. D. McGough, Jr., and L. G. Mason, Montgomery; O. N. Barney, Mobile. They serve without compensation. Asa Rountree, Jr., is director of airfield projects and Capt. Hester Smith has been assigned to the commission, without cost, as state airport engineer.

Alabama aviation is now extensive in scope. The federal government has spent, or authorized, about $3,000,000 since the beginning of CWA, 21 towns have spent close to $2,000,000 in the purchase of sites, construction and sponsor contributions; more than 20 towns have leased airfields, with annual rentals ranging from $40 to $500; there are now 46 usable airfields; planes are located in 18 towns, pilots in 32 towns; two airlines regularly traverse the state; applications are pending for two more; the army tactical school, the only one of its kind in the army, is located at Montgomery, while nearby is the U. S. Naval Air Station at Pensacola, which is

The New Silver CUB
THE WORLD'S FASTEST SELLING AIRPLANE

Air-minded America! Here's your chance to own your own plane at no more than medium-priced motor car cost. But hurry! Costs of labor and materials are mounting daily and we cannot guarantee this sensational low price for any definite period. So buy now—and save!

The New Silver Cub is America's safe airplane. Seamless steel tubing, welded sections and precision workmanship make it rugged and reliable enough to fly anywhere. It's economical, too—even more so than a popular-priced car. The Cub uses only 3 gallons of gas and 1/3 pint of oil per hour! At only $1270 F. A. F. Bradford, Pa., it's an airplane practically everyone can own—aviation's biggest value. Easy monthly payments, if you desire.

Now Only $425 DOWN

FREE!

Send for our free descriptive folder and name of your nearest Cub dealer. Paste coupon on penny post card, if you wish.

Taylor Aircraft Co.
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TAYLOR AIRCRAFT COMPANY
12 S. Street, Bradford, Pa.
Please send me your free descriptive folder and name of my nearest Cub dealer.

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1924

A Merry Christmas

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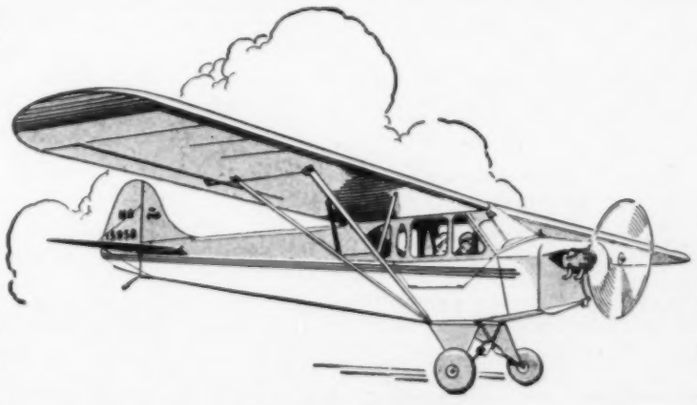
Write for our Used Ship List or stop in and see us personally



1936

A Prosperous New Year

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NEW LOW PRICE for the "CUB" $1270.00

The New "CUB"

BLEVINS AIRCRAFT CORPORATION
The South's Leading Airplane Dealers
Southeastern and Cuban "CUB" Distributors
CANDLER FIELD ATLANTA, GEORGIA

regularly scheduling training flights over the southeastern section of the state; the Bureau of Air Commerce has established two lighted airways across the state and is maintaining six intermediate fields, aviation schools are being operated in Birmingham, Montgomery, Mobile, Huntsville, Dothan, Anniston, and Gadsden. The University of Alabama has a fully accredited School of Aeronautics; the Auburn Aero Club operating at the Auburn-Opelika Airport has 30 active students from the Alabama Polytechnic Institute taking regular flight instructions; the Pensacola Naval Air Station is planning to establish a field for combat flying in Baldwin County, which will be sponsored by the commission.

Commission President J. M. Jones, Jr., flew to Washington recently via Delta Air Lines to attend the United States Conference of Mayors.

George Caldwell, building contractor, who built Shushan Airport in New Orleans, made his first airplane flight here recently when Odell Garrison in his Waco Cabin returned Mr. Caldwell to his home in Baton Rouge, La.

George Mongold and Pomroy Parks accompanied Garrison on the trip.

E. B. Eady, of Huntsville, flying his two place Waco, and John Crofford, who operates a flying school there, were visitors in Birmingham recently.

H. R. Ekins, globe circling reporter for Scripps-Howard newspapers, was the guest speaker at the Birmingham Aero Club luncheon Friday, Nov. 27, at the Tutwiler Hotel. After Mr. Ekins' talk, discussion of the proposed north and south air mail service through Birmingham was taken up by the club and tentative plans made for obtaining this additional air mail service. Dave Denney was appointed by the Aero Club as acting chairman until a permanent organization is perfected. A state chairman will be chosen from each state that the proposed new route will cross and one representative from each city affected along the route.

The first meeting was held in Miami, Fla., Dec. 9, at which time a permanent organization was formed and a program outlined. Steadham Acker, manager of the Municipal Airport, was selected to represent the Aero Club at this meeting. Mr. Acker also attended the Southeastern Conference of National Association of Airport Officials Dec. 8 and 9 and officiated at the All-American air races.

Out-of-town guests attending the Aero Club meeting were: A. B. McMullen, director of aviation for the state of Florida; Congressman R. M. Atkinson, of Nashville, Tenn.; E. E. Hensley, Tampa; J. R. Jenks, city commissioner of Tallahassee; H. P. Ford, city manager of Tallahassee; B. P. Fuller, secretary of the Montgomery Chamber of Commerce; Dr. V. J. Gragg, Clanton, Ala.; Col. Sumpter Smith, Washington; and John M. Tapers, publisher of The Tallahassee Democrat.

Pilots Richard Archbald and R. R. Rogers, flying two Ryan S-T planes from San Diego, Calif., to New York, made a brief stop here Nov. 25. O. J. Whitney, Inc., North Beach Airport, New York, who purchased the planes recently, has been appointed distributor for the New England states.

Brownsville, Texas

By G. G. Bevil

The Airport at Brownsville is daily becoming more and more a crossroad of the World, as a very steady in-

IT GETS THE JOB DONE

Our 35 watt Aircraft Transmitter can't be beat—

On November 16, Pilot R. Z. Glass of Dallas made a test broadcast 30 miles west of Davis, Oklahoma, requesting all stations who heard the message to report on reception. A few days later he was swamped with mail. Here are some of the returns:

"In response to your request when 30 miles west of Davis, Oklahoma, 5 p. m. (Central Time), November 16. Your signal was strong (QSA 4) and modulation very good."

(Signed) William B. Scott,
Cassoday, Kansas.

"In reply to your request that all radio stations report hearing you on a recent test, we wish to report as follows: We picked you up at 5 p. m. (Central Time), Monday, November 16th, reporting your position 30 miles West of Davis, Oklahoma. If correct let us hear from you."

(Signed) Airport Radio Section,
Fort Wayne (Ind.) Municipal Airport.

"Our daily Communication Report for November 16th at 6:02 p. m. (Eastern Time) indicates that you desired acknowledgment of your transmission on 3105 Kilocycles as transmitted from a position 30 miles West of Davis, Oklahoma. Senior Operator Nolan has advised me your signals were very clear and signal strength approximately 3-4."

(Signed) Frank M. Linville,
Jacksonville, Florida.

"Test call at 4:04 p. m. (Mountain Time) 3105 KCS from NC16442 reporting PX 30 miles West of Davis, Oklahoma, received at Ashfork DOC Intermediate landing field station call KCCJ. QSA 4 in moderate QRM. Voice quality excellent. Signals very good in all respects."

(Signed) E. S. Kilbride,
Ashfork, Arizona.

Investigate the "Trans-Air"—Weighs only 29 lbs. complete.

WRITE FOR FURTHER DETAILS.

AIRCRAFT RADIO COMPANY

HANGAR 9 LOVE FIELD DALLAS, TEXAS

STANAVO

AVIATION GASOLINE
AVIATION OIL
ROCKER ARM GREASE

crease in passengers with destinations in Mexico, Central and South America and even to Europe via connecting lines in South America has been noted especially during the past month.

A flight of Army students in command of Major Fitzpatrick visited the Pan-American Municipal Airport on the afternoon of December 9th, returning that night. The flight was composed of eight bombers and two observation planes.

Unusually heavy air express shipments have been passing through the Brownsville Airport from the South. The most notable being flowers from Mexico and gardenias predominating. They leave Mexico at 1:25 p. m. via Pan-American Airways and are transferred to Braniff Airways and reach Chicago and New York in time to be in the hands of florists for sale the following morning.

Recent passengers of note passing throgh Brownsville are the Hon. Findley B. Howard—American Minister to Paraguay — enroute to Washington, D. C.; Mr. J. C. Charles of EAL who is twice a member of the Caterpillar Club, having had to resort to the finished product of the lowly silkworm twice in order to save his life.

Members of the Air Corps Reserve of the Lower Rio Grande Valley have recently organized the Forty-second Bombardment Group A. C. R., with headquarters in Brownsville, and plan extensive activities as soon as they have received their allotment of planes. Major Ralph Stone A. C. R. is commander.

The Tampico Aero Club of Tampico, Mexico, recently took delivery of a new Stinson Reliant. It passed through Brownsville enroute to Tampico on Sunday, December 13th.

A new Lockheed Electra for Panair to Brazil was ferried from Burbank, California, to Brownsville where it will be checked before being flown to Rio De Janiero by Chief Pilot Geo. Kraigher and Senior Pilot J. A. Maxwell of Pan-American Airways. Pilot Maxwell will remain in Rio several weeks to check out Brazillian Pilots on same before returning to his base at Brownsville.

Mrs. Helen R. Johnson, aviatrix of Brownsville, member of Texas Chapter of the National Aeronautical Association, is a candidate for Governor of the State of Texas N. A. A.

Chickasha, Oklahoma

By Paul Black

Business at this field has been constantly improving and we are now giving 24-hour service. Student training is especially enjoying rapid growth with two solos in one week in December and five guaranteed for another week.

Paul Norris is now flying the Porterfield instead of a pusher. Charles Glass of Anadarko is still bouncing around, and Andy Thomas is still handing out cigarettes around the Hangar crew. Our new name for them is "The Three Flying Bachelors."

Passenger business has also been on the top in spite of the fact that Walter Hawkins and Oran Jolly still sleep all day. Your correspondent is still looking for new prospects and will appreciate hearing from anyone having more than they need.

Among visiting ships recently was the U. S. Army Air Corps Autogiro which stopped in on the way to Fort Sill, Oklahoma, nearby army base.

Dallas, Texas

By Mrs. Andy Anderson

The first Women's National Aeronautical Association unit ever organized in Texas came into being last month and at present we can boast of forty charter members. This organization is for any woman interested in the promotion of commercial aviation and from all appearances there are plenty such ladies in Dallas as a membership of a hundred looks likely.

On the recent South Texas Air Tour, your correspondent (WNAA governor for Texas) made contacts in Houston, McAllen, Brownsville and San Antonio for establishment of other units. From the reaction, it appears that we will have some of the most active chapters in the United States.

Braniff Airways' second annual sales meeting was held

Demand Air Line Perfection In Your Work!

Five Master Mechanics each having had years of experience in service and overhaul departments of major air lines.

Finest machinery and equipment for maintenance and overhaul—Shops under personal supervision of Bill Click, for eight years maintenance engineer for entire southern division of American Airlines.

★ OVERHAUL
★ REPAIR SERVICE
★ STORAGE
★ CHARTER

BENNETT AIRCRAFT, INC.

distributors of

WACO AIRPLANES

Approved Repair Station Number 281

Love Field, Dallas, Texas

NICHOLAS BEAZLEY AIRPLANE COMPANY, INC.

HOME OFFICE - MARSHALL, MO.
FLOYD BENNETT FIELD - BROOKLYN, N.Y.
LOVE FIELD - DALLAS, TEXAS
6235 SAN FERNANDO RD. - GLENDALE, CALIF.

Everything for the Airplane Owner, Operator & Manufacturer

in Dallas last month. Fifteen men from Chicago, the northermost point, and representatives from the entire line all the way to sunny Brownsville attended the meeting. Rogers Humphreys of Chicago & Southern, Laigh Parker of Delta, Sam Wilkes of Eastern, Malcolm Boss of Hanford, John Schlegel of Pan-American, and P. B. Sturgis and George Lusk of TWA were representatives of other lines in attendance.

An interesting point of the meeting was the fact that at midnight, Sunday, November 15th, practically every man was in Dallas and by nine o'clock the following morning, they were all about fifteen hundred miles apart.

Houston Municipal Airport

By Clyde Foreman

This airport has been the center of varied and interesting events the past few weeks, now that Eastern Air Lines has taken over Wedell Williams—the Douglases are a source of continual interest to the average Houstonian, and the visitors list increases daily.

L. J. Specht who was chief mechanic in charge of operations for the Houston Division of the Wedell-Williams Line, is being sent to the technical school of Eastern Air Lines at Miami and upon completion of the course will be sent to one of their outlying divisions.

Eddie Rickenbacker and several other officials of the Eastern Air Lines, were honored by a luncheon at the Rice Hotel here the 15th of December. And Houston turned out en-masse for the dedication ceremony on the same day, of the Douglas Airliner "City of Houston." The ship was christened by Mrs. Harry Williams, widow of the late Harry Williams, co-owner of the Wedell-Williams Airline. Mrs. Williams was a movie star of quite some repute in the old silent films, before her marriage.

J. D. Reed of Air Activities, Inc., arrived in Houston December 15th with the company's new blue and grey Fairchild Ranger "24."

Mr. A. L. Yates, millionaire sportsman of San Antonio, has ordered his second Fairchild Ranger "24" and will get delivery within the next few days.

Air Activities, Inc., Texas distributors for Taylorcraft, expects delivery of a demonstrator about the first of January.

Eastern Air Lines is at present represented on this field by Arthur Furshgott — Station manager. W. Abbey — mechanic in charge. Mr. Daniels — radio operator in charge.

Marshall, Texas

By J. O. Womack

The new all-steel hangar is nearly completed at this writing and work will be started at once on the shop and office buildings. The new hangar is 60 by 80 feet. A new pit type gasoline dispensing unit will be installed immediately.

Dr. Jack B. Baldwin was recently appointed medical examiner for Marshall and has given the following students their permits: Miss Katherine Carroll, Mr. James Craig and Mr. Dan Sellers.

The Marshall Flying Service, which is an independent operator, has leased the field and owns the new hangar. The company operates an Aeronca, a Taylor Cub and a Challenger TravelAir. Better business is predicted after completion of improvements.

Recent visitors include the Taylor representative, Cates Epright; Captain L. M. Merrick en route to Hartford, Conn., in a new 0-46A, Clent Breedlove, manager of the Lubbock Municipal Airport, en route to join the Cub Convoy in Atlanta for Miami, and I. L. Edwards of Longview in a Taylor Cub.

San Antonio, Texas

By Greg Moore

The big event for the month of November was the arrival of the South Texas Air Tour on November 15th. Headed by Buck Rowe and Hal Henning some twenty ships were met by field officials, city enthusiasts and local airmen. The pilots and passengers were escorted to town by motorcycle police and given a big party at the Gunter Hotel. P. H. Hebert and Al Tuerpe were the local representatives on the tour. Tuerpe flew an Aeronca and Hebert a Taylor Cub.

Among other visitors to Stinson Field were four ships purchased by the Mexican Government from the Consolidated Aircraft Co. They were enroute to Mexico City and headed by Capt. Martin Tapia of the Mexican Air Service. These four ships are part of ten planes built for the Mexican Government by Consolidated.

Work has been started on the field lighting system and it is expected to be completed by the end of December. This includes a lighted circle in the center of the field, a Neon lighted wind "T," new border lights, runway lights, and a revolving beacon on top of the Administration Building.

On Friday, the 27th, Jimmy Doolittle and Billy Parker of the Phillips Petroleum Co. stopped off on their way to Kerrville, in the hill country. They expect to get in some good hunting.

Hangar Six enrolled four new students this past month: Albert Gray, Milton Weinfield, Rip Haisley, and Antonio Montez. Three students of this hangar met the Department of Commerce requirements and received their private licenses. They were: Bob Brown, Con Little, and Oscar Travlane. Herbert Gray, formerly of Georgetown, is assisting Leland Long as instructor for Hangar Six. He received his training under Jimmy Haislip. Col. Jack Lapham flew a new Rearwin from the factory the other day. This ship is powered with a LeBlond 90 h. p. motor and will be used for advance training.

United Aero reports two students who received their licenses while Department of Commerce Inspector Clark was here. Henry Fischer received his amateur license and Robert Coker his private.

Dr. Leslie Dick and Al Tuerpe flew an Aeronca to Corpus Christi, Kingsville, and return, and reported a very pleasant trip with an interesting view of a burning oil well at Corpus.

On Thanksgiving Marlin Fischer and Mr. Morrison, a lumberman from Kingsville, flew to Austin to attend the football game in United's Waco.

Shreveport, Lousiana

By Jack E. Myers

Joe Jacobson gave the citizens of Shreveport a thrill on November 13th, when in his Curtiss-Wright plane, he demonstrated his skill in sky writing. Flying at an altitude of over 10,000 feet, he spelled out the word "CHEVROLET" as an advertising stunt. When completed, the word stretched out over a mile long.

On November 10th, Barksdale Field played host to several high ranking officers, who visited the field from a visit to the West coast where they inspected army bombardment maneuvers. Brig. Gen. Gerald C. Brant honored them with a full wing review, with all available planes taking part. The visitors included Brig. Gen. Walter Kreuger, assistant chief of staff in charge of the war plans division; Brig. Gen. Oliver L. Spaulding, assistant chief of staff in charge of supplies; Brig. Gen. Frank M.

Andrews, commanding general of the G. H. Q. air force, in whose big Douglas flagship the party were traveling; Brig. Gen. Henry S. Pratt, commanding general of the second wing of the air force; Col. John N. Greely of the war plans division; and Col. Joseph T. McNanry, G. H. Q. air force supply officer.

The outstanding event of the month was the mammoth annual charity air show, which the daring young aviators of the army held on November 15th. Before an audience, estimated at nearly 15,000 people, the war birds put their small pursuit and attack planes through maneuvers never before witnessed in Shreveport. They displayed skill in ground target firing, bombing attacks, aerial combats, acrobatics, simulated gas attacks, and the laying of a hugh smoke screen. The show was climaxed with 75 planes in perfect formation passing in review. Army officials acclaimed this as one of the greatest aerial circuses ever exhibited.

Tulsa, Oklahoma

By Frances Brown

Mrs. Wiley Post received the Federation Aeronautique Internationale gold medal (awarded her husband in 1933) at a banquet here December 15th. Some four hundred guests attended the banquet presided over by Walter Harrison, managing editor of the *Daily Oklahoman*. Guests included Post's mother; Mrs. Tom McSpadden, sister of Will Rogers; Frank Phillips, who backed Post for several years; and C. R. Smith, president of American Airlines.

At the December meeting, the Tulsa WNAA Unit approved a donation to the Wiley Post Memorial Fund, which was initiated at Oklahoma City, and which is receiving the support of the Oklahoma City WNAA Unit.

The first book of our Aeronautical Library was started in circulation, and three of our members will have the pleasure of reading "North to the Orient" before the January meeting.

Fifteen Tulsa members were present at the luncheon and business meeting, and four new chairs added recently to the Club Room furnishings, went into service.

Tulsa members were much interested to see the splendid group picture of the National meeting at Denver, and it is to be framed and placed on our Club Room wall at once. Everyone commented on the charming appearance of or own delegate, Gerry Honomichl, who has since moved to Dallas. We also quickly located in the picture some of the Oklahoma City folks—Mrs. Moss Patterson, Mrs. Brazell and Mrs. Burke.

Tulsa member, Mrs. Gayle Horrall, whose husband owns the local Commercial Airport, now has a Fairchild ship on which to build up her time for her private rating.

Mrs. R. L. Hahn's husband recently purchased a shiny vermillion Rearwin airplane.

Mrs. Gladys Field is on an extended flying trip with her husband in Texas.

Mrs. W. G. Green has been on a trip with her husband in their new Cessna to Mexico City, and was prevented by bad weather from getting back to Tulsa in time for our meeting.

The husband of our new member, Mrs. Georgia Clif-

$1295 with Continental "40"

$1795 with Velie "65"

•

$2095 with LeBlond "70"

$2795 with Warner "90"

•

The Sun Never Sets on Porterfields

PORTERFIELD AIRPLANES enjoy the world's foremost safety record and are giving entire satisfaction in nearly every state, also in England, China, Australia, Canada, Puerto Rico, South Africa, Peru, Argentine, Chile, Brazil, Roumania, Mexico and Panama.

PORTERFIELDS' advanced engineering and low prices together with their top notch safety record and the fact that there is more performance in PORTERFIELD AIRPLANES per horsepower than is otherwise known in the industry, has made these airplanes, which can be purchased for one-third down, the most popular fully powered complete airplane on earth today.

Many good territories are open for live-wire distributors.

Whether you are interested in making money from selling the foremost and most complete line of two-place sport-trainer airplanes, or if you want one for your own use and pleasure, you will appreciate this new descriptive book just off the press.

Our booklet contains interesting testimonial letters which were sent to us voluntarily from owners all over the world.

PORTERFIELD AIRCRAFT CORPORATION
2467 Charlotte St., Kansas City, Mo.

ford, is the publisher of an interesting magazine known as the Tulsa Airman.

Mrs. Fritz Martin, husband and two sons, flew in their Beechcraft to Tulsa for the Thanksgiving holiday and were held over two days on their return by bad weather. Mrs. Martin just had had a visit from their friends, the Fishers, whom they visited in China last summer. Mr. Jim Fisher is a representative in China for Stinson and other American built airplanes and was here with his wife and son on their annual trip to the States. Mrs. Martin reported kind hospitality from the Littlejohns—Department Inspector at Shreveport and wife.

Honor guest and speaker at the December meeting was Mrs. Mary Alexander Held, of Washington, D. C., who is visiting in Tulsa. Mrs. Held, formerly a transport pilot, told of the organizaiton in 1929 of the 99er Club, of which she was a charter member, together with many interesting experiences had while she was actively flying throughout the state of Virginia. Mary Held was among the first 70 women in the United States to receive a private rating, and among the first 50 to obtain a transport rating. Having taught her own sixteen-year-old son to fly in 1931, she was designated by the press as the "air-minded mamma," and later, after her son married, as the "flying Grandmother."

Mrs. Held's varied life as a business woman, wife, mother and grandmother, added to her inherent charm and common sense, makes her opinion on women in aviation of value. It is her belief that aside from the category of flying for sport and pleasure, there are many places where women can be active in commercial aviation, such as in the operation of airports and flying schools and various ground positions with air transportation companies. She pointed out as an example the air marking program now being carried out by several expert women pilots under the direction of Mrs. Phoebe Omlie who holds an executive position with the Department of Commerce Air Bureau.

Mrs. Held also believes that women pilots would be useful in the event of our country being involved in a war. While no sane woman wants war, she said, all intelligent women believe in being prepared, and women could render great service as ferrying pilots, flying the ships from the factories to points where men pilots could take them on.

If Mrs. Held should happen to visit the location of any other W. N. A. A. Unit, the Tulsa Unit is certain that unit would find it a pleasure to have her as their guest.

Wichita, Kansas

By Creighton Merrell

Biggest aviation news for Wichita was being written in Miami skies by Wichita built airplanes as they skyrocketed to new records. That is, some of them are new records. However, the performance of the Cessna with Dwane Wallace piloting it to a second successive victory in the Detroit News Trophy Event is not new. But we are proud to have the trophy in our city for another year and also that Dwane took the winning place in the Argentine Trophy Race for commercial planes having a maximum displacement of 550 cu. in. The average speed of 165.13 miles per hour made on the closed course indicates that the advertised speed of the Cessna has never been exaggerated.

The Miami Races proved to be just one more smooth trip to prize money for Beechcrafts this year. The results were practically the same as appeared in Denver papers at the close of the Mile High Air Races the past July. In the Col. E. H. R. Green Trophy Race, Bill Ong,

(Continued on Page 26)

BARGAINS . . . . in USED PLANES

WACO STANDARD CABIN BIPLANE, Jacobs 225 h. p., Model YKS 1936. only 6 hours total time; big discount. Plenty of extras.

BEECHCRAFT, Wright 420 h. p., practically new and has just been factory reconditioned. Flares and RCA radio.

LOCKHEED VEGA, Wasp SC1, only 164 hours total time. Five place. Tip top shape, leather upholstery. Gas in wings, 230 gallons.

LOCKHEED VEGA, Wasp C, 7-place cabin. Licensed to May 1, 1937. Complete instruments including Sperry Gyro, also radio.

LOCKHEED VEGA, Wasp C engine. 70 hours on ship since new half shell installed and front ring. Painted 20 hours back. All new type parts in motor. Plenty of extras.

WACO DELUXE CABIN 1934. Wright 250. Total time on plane and engine 800 hours. Time since major less than 200 hours.

STINSON RELIANT Model SR5, 1934. Lycoming 245 h. p. Controllable prop. Special paint, leather upholstery, all instruments and radio. only 65 hours since major by Booth-Henning, total time only 450 hours.

FAIRCHILD 24, Warner 145 h. p., 3 place cabin. 20 hours since major, an exceptionally clean ship and real buy.

STINSON MODEL S, Lycoming 215 h. p., Hamilton prop. Red leather upholstery, all instruments, wheel brakes, 50 gallon tanks, modified ring.

STINSON Model SR5, 1934, Lycoming 245 h. p., Hamilton prop. RCA Radio, Landing lights, flares, 70 gallon gas tanks.

TRAVELAIR open biplane, Wright J-5, 3 place. Airplane recovered and engine majored 150 hours back. Oil-draulic struts.

FLEET Cabin Biplane, Warner 110 h. p., equipped with duals, balloon tires. Ideal for student instruction.

RYAN B5, Wright J-6-9, 240 total hours on ship and 1300 hours total on engine. Engine has 40 hours since $500 major. Has about $200 night flying equipment. Recovered about six months.

TRAVELAIR Open Biplane, Wright J-5, 3 place, Hamilton prop, full air wheels, tail wheel, duals, 145 hours since major, 400 hours since complete overhaul.

CURTISS-ROBIN Challenger 165 h. p., metal prop, silver fuselage, maroon wings, ship and engine in excellent condition.

Above ships ready for delivery, subject to prior sale.
If you desire any of the foregoing, or any airplane not listed here, or wish to trade your present airplane, wire or write

★

P. F. [Pop] HOTCHKISS

AIRPLANE EXCHANGE AND BROKERAGE
Representing Booth-Henning, Inc.
MUNICIPAL AIRPORT FORT WORTH, TEXAS

Classified Advertising

Classified Rates: 5c per word. Minimum Charge $1.00. Classified Display: $5.00 per inch. Payable in Advance.

AIRPLANES AND ENGINES FOR SALE

FOR SALE: Late '31 Velie Monocoupe. Adjustible stabilizer, air wheels, speed ring. Motor majored. Ship licensed to November, 1937. Condition A-1. BILL VACIN, Municipal Airport, Wichita, Kansas.

WARNER SCARAB for sale. Complete with Collector Ring. Hamilton Standard Prop. 40 hours since new master rod and rings. Also LeBlond 60. BLACKWELL FLYING SERVICE, Palestine, Texas.

CESSNA C-34 built in August '36; ship flown 71 hours, re-equipped with present motor and flown only 1 hour. Shielding and bonding; generator, ammeter, voltmeter; full airwheels; special tank to permit 8½ hours cruising; other extras. Deep blue with yellow stripe. A fine clean job, priced for immediate sale. BEECH AIRCRAFT CORP., Wichita, Kansas.

STINSON 1934 Model Reliant powered by Lycoming 225 h. p. engine. Only 400 hours and in A-1 shape. Paint lik enew. Bargain at $2,500. A. B. Alkek, P. O. Box 211. Victoria, Texas.

MISCELLANEOUS EQUIPMENT FOR SALE

IF YOU NEED any J-5 parts, including propeller, write Buster Trimble, 506 West Central, Fort Worth, Texas. Also selling excellent parts from dismantled six place J-5 Stinson. Good instruments, including Bank and Turn, Rate of Climb, Altimeter, Pioneer Compass, tachometers, oil pressure gauges, etc., sacrificed at give-away prices.

PARACHUTES of all makes and types at popular prices. Good Irvin Seat Packs as low as $55. C. I. Merrell Parachute Service, 631 North Topeka, Wichita, Kansas.

PLANES WANTED

WANTED: AERONCA. State price, location and condition. Prefer C-3 Aeronca, closed model. L. S. BYRD, 838 Monroe, Fort Worth, Texas.

WILL TRADE good farm land, seven hundred acres in wheat, in Colorado, Texas, or Nebraska, for small training ship, Aeronca or others similar. Also trade for three or six-place ship; prefer Fairchild, Stinson or Waco. Some cash is justified. Dr. Beiderwell, Belleville, Kansas.

EMPLOYMENT

WANTED: Mechanic Co-pilot for bi-motored plane. Must have had airline maintenance experience and hold transport and A. & E. licenses. Write SOUTHERN FLIGHT, Box 1200, Ledger Building, Fort Worth, Texas.

EXPERIENCED TRANSPORT PILOT, age 27, with A. & E. Mechanics License, desires combination flying and maintenance position that offers good future, preferably in Southwest. Excellent references furnished on application. Eight years varied experience with all types of equipment. Write or wire Box 1020, Southern Flight, Ledger Bldg., Fort Worth, Texas.

PILOT WANTED: Permanent with advancement. Will conisder student and furnish ship with instruction. Write for details. Dr. Beiderwell, Belleville, Kansas.

DON'T FORGET!

The Time	The Place	The Thing
Jan. 28-Feb. 6, 1937	New York City.	National Aviation Show
March 13-21, 1937	Los Angeles	Second Annual National Pacific Aircraft & Boat Show

FREE SOLO COURSE given with purchase of a Rearwin Sportster. This ship excellent for student training and cross-country flying. Low operating cost. Lou Foote Flying Service, Love Field, Dallas, Texas.

FOR THE PRIVATE FLYER

An Aircraft Radio TRANSMITTER

Complete transmitter weighs less than 25 pounds and simple to operate. Works all weather and beam stations for 150 to 250 miles in day time and 300 to 400 miles at night. It is one of the most compact and economical radio transmitters in cost and operation. Write or wire for further information.

AIRCRAFT RADIO COMPANY

Hangar 9 — Love Field — Dallas, Texas

FOR SALE

Two J-5 crankshafts and complete line of J-5 parts. Wasp K. E. valves, miked and tested with stretch gauge.

— A BARGAIN —

Brand new factory J-5 steel exhaust valve guides—$1.00 each. Only 65c each in lots of fifty or more. Better get 'em while they last.

FAST CHARTER SERVICE

Anytime — Anywhere

We have added an all metal Wasp powered Lockheed Vega to our charter fleet. Complete airline equipment, including radio and instruments. Economical rates.

RITCHEY FLYING SERVICE

Meacham Field — Fort Worth, Texas

AVIATION INSIGNIA

IDENTIFICATION - LAPEL BUTTONS

WRIST BANDS

Prices on special orders in Gold, Silver and Platinum gladly sent on request. Tell us what you want . . . we'll send the price.

HALTOM'S

6th and Main — Fort Worth, Texas

Ports of Call

(Continued from Page 24)

Beech sales representative, whipped across the finish line to win $600 and set an average speed mark of 173 miles per hour. The ship was powered with a 285 h. p. Jacobs engine. Riding his tail to the line was Robert Glass of Dallas flying his private owned Beechcraft of the same power. Third money was placed in the hands of Dwane Wallace in his lower powered Cessna. Ong averaged 194.68 miles per hour to win the Glenn H. Curtiss Trophy Race, an additional $600 in prize money. He flew a Wright 420 Beechcraft as did Bill Eddy, private flier of West Palm Beach, who placed second. Glass of Dallas took third money.

To hoonr the Wright brothers and the famous first flight of December 17th, 1903, the Wichita Aviation Club sponsored a mass flight at 10:30 a. m. on December 17th over the city. Arrangements were in the hands of Andy Swenson, president of the Wichita Aviation Club, and Warren Blazier of the Chamber of Commerce. This event has always been enthusiastically met by local pilots and has helped greatly to impress the public with the contribution of the famous brothers.

Of interest also is the fact that on December 17th, Wichita was connected for the first time by air to Dayton, Ohio, home of the Wrights, when TWA completed the first schedule from here. For a time only daylight stops will be made at the eastern city but service will be extended later when the field there is in proper shape.

The biggest Wichita aviation social event for 1936 was staged December 11 when the Wichita Aviation Club entertained with a dance at the local Shadowland Club. Attending the dance were all the local aeronautical people who were not tied down by extensive factory production work and a large number of pilots and aviation personnel from Kansas towns and Oklahoma. The affair went over very well and plans are already being made to make it at least an annual affair if not oftener.

Gene Rawdon, local sportsman flier, is back at work at the Stearman Aircraft Company after an absence of about two months. Recently he was seriously injured while piloting a glider that went into a spin at a low altitude. Henry Awbrey, who flies his own Monocoupe from the municipal airport, will drop tickets from the air giving free chances on a Christmas turkey in connection with the local American Legion Turkey Shoot. Bill Vacin, operator of the Bill Vacin Flying Service, has moved his school to the municipal airport hanger and will operate from there in the future.

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Motoreel Aircraft Antenna

(Continued from Page 13)

able to vary the length of the antenna to get maximum radiation eliminates this problem and insures putting all of the transmitter's power to work without waste.

Likewise it is possible to pre-select any given length of antenna, turn the "operate" switch to the "out" position, and the Motoreel will automatically reel out the length of antenna selected and stop. Warning lights remain on until the antenna has been retracted. They are a constant warning to the pilot that the antenna is out. Complete retraction of the antenna is obtained by turning the control handle on the remote unit to the "in" position. When the antenna is all the way in and the weighted swivel fish is in its proper position against the fairlead, the warning lights automatically switch off.

The use of an antenna current meter in conjunction with the remote control unit enables the pilot to select a length of antenna giving maximum current circulation. It is only necessary for him to note that length and reset the antenna accordingly each time he wishes to use his transmitter on that particularly frequency.

The swivel fish is so arranged that when the antenna is completely retracted there is a short flexible piece of wire still extended for short range communication when approaching airports for a landing and for communicating with the control tower when the ship is on the ground.

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Beechcraft Model 18

(Continued from Page 15)

Height	9 ft., 5 in.
Landing gear tread	12 ft., 11 in.
Gross weight	6,500 lbs.
Empty weight with Standard equipment:	
Wright R-760-E-2 engines	4,100 lbs.
Jacobs L-5 engines	3,920 lbs.
Power loading based on take-off power:	
Wright engines	9.29 lbs./h.p.
Jacobs engines	10.83 lbs./h.p.
Wing loading	18.7 lbs. sq. ft.
Areas:	
Wing including aileron	347.0 sq. ft.
Aileron	23.9 sq. ft.
Flaps	36.0 sq. ft.
Fin (both)	14.3 sq. ft.
Rudder (both) including tabs	14.0 sq. ft.
Stabilizer	39.3 sq. ft.
Elevator including tabs	27.5 sq. ft.

Performance (full load—estimated):

Wright engines:
- Cruising speed—185.5 m. p. h. @ 11,500 ft.
- Cruising speed—167 m. p. h. @ sea level.
- Climb at sea level—1250 feet per minute.
- Service ceiling—20,000 feet per minute.
- Single engine ceiling, full load—8500 feet density altitude.

Jacobs engines:
- Cruising speed—180.5 m. p. h. @ 8000 feet.
- Cruising speed—167 m. p. h. @ sea level.
- Climb at sea level—1200 feet per minute.
- Service ceiling—19,000 feet.
- Single engine ceiling, full load—8000 feet density altitude.

Range:

With Jacobs engines, 6 passengers, 2 pilots, 479 lbs. baggage, 125 lbs. extra equipment and 96 gallons gasoline, 465 miles cruising 210 h. p. .50 specific consumption, (300 miles, no wind, 45 minutes reserve, 6-gallon warm-up.)

With Jacobs engines, 2 passengers, 2 pilots, 125 lbs. baggage, 417 lbs. extra equipment and 210 gallons gasoline, 1000 miles cruising 210 h. p. engine, .50 specific consumption.

With Wright engines, 6 passengers, 2 pilots, 300 lbs. baggage, 125 lbs. extra equipment and 96 gallons of gasoline, 475 miles cruising at 210 h. p. .50 specific consumption. (310 miles, no wind, 45 minute reserve, 6-gallon warm-up.)

With Wright engines, 2 passengers, 2 pilots, 125 lbs. baggage, 235 lbs. extra equipment and 210 gallons gasoline, 1070 miles at cruising speed, 210 h. p. .50 specific consumption.

Be Wise!

Include SOUTHERN FLIGHT in your 1937 Advertising Program and tap the wealthy markets of the South, Southwest and Middlewest—the all-year-'round flying country now leading the nation in aviation sales.

Join the ranks of these leaders who have utilized SOUTHERN FLIGHT'S concentrated distribution throughout 1936:

The Texas Company
Aviation Gasoline, Oils, Greases
General Tire & Rubber Company
Airplane Tires
RCA Manufacturing Company
Aviation Radio
Sperry Gyroscope Company
Flight Instruments
Pioneer Instrument Company
Flight Instruments
Bredouw-Hilliard Aeromotive Corporation
Supply House
Nicholas-Beazley Airplane Company
Supply House
Thompson Products, Inc.
Valves
Suncook Mills
Flightex Fabric
Menasco Manufacturing Company
In-line Aircraft Engines
Lear Developments, Inc.
Aviation Radio
Waco Aircraft Company
Airplanes
Beech Aircraft Corporation
Airplanes
Taylor Aircraft Company
Airplanes
Ryan Aeronautical Corporation
Airplanes
Porterfield Aircraft Corporation
Airplanes

Cessna Aircraft Company
Airplanes
Monocoupe Corporation
Airplanes
Aeronautical Corporation of America
Airplanes
Parks Air College
School
Lincoln Airplane & Flying School
School
Transcontinental & Western Air, Inc.
Air Line
Braniff Airways, Inc.
Air Line
Chicago & Southern Air Lines
Air Line
Air Activities, Inc.
Airplane Distributor
Bennett Aircraft, Inc.
Airplane Distributor
Blevins Aircraft Corporation
Airplane Distributor
Booth-Henning, Inc.
Airplane Distributor
Harry Hammill
Airplane Distributor
P. F. Hotchkiss
Airplane Distributor
Aircraft Radio Company
Aviation Radio
Humble Oil & Refining Company
Stanavo Aviation Gasoline

Quality Coverage ★ No Waste Circulation ★ Economical Rates

—Write for Complete Information—

Southern Flight

LEDGER BUILDING **FORT WORTH, TEXAS**

1937 is 1939 to those who fly a Beechcraft

Sales in 1936 were MORE than double those of last year. This is the record of the BEECH AIRCRAFT CORPORATION for 1936.

We will not introduce into our standard line any so-called new models but a large portion of the increased profits is being used to further improve and REFINE our standard PROVED models and to assure a STILL GREATER increase in sales and service for 1937.

Our 1937 line will be augmented by the addition of a twin engine, executive model, all-metal monoplane. This plane will be custom made so far as cabin appointments and accommodations are concerned. Passenger model will seat six passengers and two pilots comfortably. Extraordinary refinements in design and engineering render this ship outstandingly efficient and economical as well as the most luxurious plane yet presented to the market.

Wishing you a Prosperous New Year

Walter H Beech

BEECH AIRCRAFT CORPORATION

6409 EAST CENTRAL WICHITA, KANSAS, U. S. A.

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